The Builder.

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THE architectural embellishment of a city is of much greater consequence in forming the character of the people than some hasty thinkers now-a-days recognize. The constant contemplation of fine forms, or the reverse, has a powerful effect upon the mind; and it should be the duty of governments to aid in obtaining for the multitudes the advantages of the former to the extent of their power.

Plato says, in one of his Dialogues, "The plan we have been laying down for the education of youth was known long ago to the Egyptians, that nothing but beautiful forms and fine music should be permitted to enter into the assemblies of young people."

In England, this has been little thought of; the people have been rigorously excluded from the contemplation of works of art, although the enjoyment of it would have cost the nation nothing; and many of our public buildings, instead of advancing the standard of taste, have tended to lower it. That an anxious desire exists at this moment to remedy the mistake as quickly as possible is certain. And this no one will doubt who has watched the proceedings in Parliament during the present session. Although it is unfortunately too much the custom of the daily press to omit reporting much of what is said in the House about art and monuments, it is obvious that these subjects have occupied more attention there than usual. In the debate as to whether the tax of 1d. per ton on coals should be continued, and the money devoted to the purpose of improving the town, all agreed in the necessity for metropolitan improvement, however much they differed as to the propriety of raising money by that particular tax.* The vote of money for the repair of St. Margaret's church, Westminster, led on another occasion to a long conversation on Gothic buildings and taste; and Mr. Hume's annual motion for opening St. Paul's and Westminster Abbey, when brought forward on Monday night last, was received in a very different manner from what used to be the case, and led to a more satisfactory result.

When the vote for St. Margaret's was proposed, Mr. P. Borthwick objected, on the ground that the money hitherto granted had been expended in the worst possible taste. He thought the church ought to be pulled down and rebuilt, rather than to undergo the Georgian-Gothic alterations with which it was proposed to deface the building. He also objected to Westminster Abbey, as not fulfilling the purpose for which it was intended. It was neither a cathedral nor a place of public exhibition, but rather a cross between both. (Laughter.) The monuments were a disgrace to the age and to the edifice. The Chancellor of the Exchequer said that architectural amateurs were quite insatiable in their demands for public money to be spent in carrying out their ideas. As to St. Margaret's church, as the House of Commons occupied it in some sort, it was but proper that some part of the public money should be appropriated to its expenses. If the church were pulled down, as wished by Mr. Borthwick, an expense of not less than 50,000*l.* would be incurred. Mr. Osborne wished to know what was the use of the commission having brought in a report that the church ought to be pulled down, if parliament were to be required to vote 1,200*l.* for repairs? He was satisfied if Government came forward boldly, and proposed a vote of 40,000*l.* for a new church, that it would not be disapproved of. Viscount Sandon said, he should regret to see 40,000*l.* granted for merely replacing the same church. It would be much better to expend the money in pulling down the two towers of Westminster Abbey, which were alike deficient in taste and architectural beauty. Mr. Sheil would ask hon. members if the Abbey was turned to as much account as it ought to be? (Hear, hear.) It was a noble building, and might be made much more available for religious worship. Let the House consider the immense difference between the use made of that church and the churches on the Continent. The congregation was crowded into a small space; but that portion of the edifice might be enlarged by the expenditure of a few hundred pounds, and sufficient accommodation would thus be afforded, in a most economical manner. He never beheld a more beautiful structure than that now erecting by Mr. Barry. When the building should be completed, and the new street constructed, St. Margaret's church would be a complete eye-sore, although so much public money would have been laid out in improvements. Mr. Prothero was of opinion that St. Margaret's church was a very fair specimen of undecorated Gothic architecture (?) The only part of the Abbey which was concealed by the church was the ugly portion between the north entrance and Henry the Seventh's chapel; and St. Margaret's church was far more sightly. Mr. Escott felt somewhat alarmed at the tone of the right hon. baronet the Secretary of State for the Home Department, who evidently intended that St. Margaret's church should remain permanently. If they consented to vote hundreds of thousands every year for the new palace at Westminster, and could not afford 20,000*l.* or 30,000*l.* for the removal of that church, it would be better to put a stop to the improvements altogether. He considered the church to be a complete disgrace to the neighbourhood. The money for the repairs was, however, ultimately voted.

The terms of Mr. Hume's motion were;—"That in the opinion of this House, the practice of exacting fees from the public, as the condition of their admittance to cathedrals, is highly improper, and ought to be discontinued."—Sir R. Peel said he had always expressed his opinion that there was *great public advantage in giving as free and unrestrained admission to those noble edifices as could be*, consistently with securing those works of art which they contained. He could not conceive any thing that would exercise a better influence on the public mind than free admissions of the kind. At the same time he thought they should be subjected to one restriction,—namely, that precaution should be taken for the security of the monuments and other works of art erected in those edifices. Speaking generally, he believed nothing could be more exemplary than the conduct of the great body of people when thus admitted. He spoke now of the working class, for their conduct had been quite as exemplary as that of persons in a higher condition of life. When a distinguished divine, the late Dean of Westminster, was appointed to another sacred office, he (Sir R. Peel) had an interview with him, and spoke to him on the subject, and he believed it was not only his wish but that of the whole chapter, to give the liberty of free admittance as far as was consistent with the security of the works of art. He was certain the present Bishop of Ely, in pursuance of the promise he had made, had given the fullest consideration to the subject, and that his exertions had been most constantly directed towards the object which the right hon. gentleman had in view. He (Sir R. Peel) had now the satisfaction of stating that, in consequence of a communication he had made to the present Dean of Westminster, Dr. Wilberforce, when he took the opportunity of stating to him the opinions he had expressed to Dr. Turton, he mentioned how freely the public had been admitted to the exhibition of works of art, and how exemplary their conduct there had been; that there had been no instance of misconduct, and that they all retired with expressions of grateful acknowledgment for the opportunity that had been given them of inspecting those works, and that they felt an interest in them which it was most desirable to encourage; in consequence of that communication, he had, a few days since, received the following letter from the Very Reverend Dean of Westminster:—

"As I know your wishes respecting the admission of strangers, I trouble you with a few lines to say that I have just issued some new directions on that subject. Strangers are henceforth to be admitted into the south transept, the naves, and the north transept, that is, into the great body of the church. The only portion from which they will be excluded is from the choir, except at time of service, for obvious reasons, and the chapel behind the choir. These will be shewn to them at a charge of 6d. apiece, and this will be the only payment allowed in the abbey. Such a payment is universal on the continent.

"S. Wilberforce."

The admission then to the body of the abbey would be free, as was the practice in foreign countries; and if the parties visiting wished to see the choir and the chapel, he believed a small fee would be required.

On the occasion of taking the vote for 2,000*l.* towards the expense of statues of Hampden, Lord Falkland, and Lord Clarendon, the execution of which works is recommended by the Commissioners of Fine Arts to be given to William Calder Marshall, John Bell, and John Henry Foley, whose works in the last exhibition in Westminster Hall were considered by the commissioners to be entitled to special commendation,—Mr. Williams expressed a hope that when monuments were being built to commemorate the achievements of the former monarchs and rulers of this country, the claims of the Protector Cromwell would not be overlooked. Not one of those rulers had been more distinguished as a soldier and a statesman; and he was as much entitled to a monument to be raised by the people of this country as Napoleon was to one from the people of France. He hoped that Cromwell would not be denied a niche in the palace of Westminster.—Mr. Hutt believed that the protector would not be excluded. He had seen a list in which his claims to a niche were sub-

* In the course of the discussion on this measure in the House of Lords, the Marquis of Londonderry who has perseveringly opposed it, said, the tax would produce 300,000*l.* per annum. This tax, he said, did not fall on the consumer, but on the coal-owner. On the same occasion, the Marquis of Westminster called the attention of the Government to the way in which the communication from Oxford-street to Holborn had been carried out; the opening had been made so narrow, that he feared it would cause greater evil than the former circuitous route.

mitted to the Committee of Taste, who would no doubt duly consider them. What we wish to shew by these memoranda is simply, that a desire for the improvement and adornment of the metropolis is manifesting itself extensively. A good spirit has been awakened, and we hope, will not be allowed to sleep again.

What may be achieved in a short time may be strikingly illustrated by reference to the extraordinary works executed in Munich through the genius, liberality, and energy of the present King of Bavaria. Within the last thirty years the aspect of the city has been changed; a crowd of wonderful buildings has been raised, and a new school of artists created. The Glyptotheca, commenced in 1816, and finished in 1830, is 220 feet square. The Pinacotheca, completed six years later, is above 500 feet long; and (not to speak of the Basilica of St. Boniface, the church of All-Saints, and numerous other monuments), the Walhalla, near Ratisbon, just now finished, has sprung, "like an exhalation," from the rock on which it is reared, to immortalize its projector. Munich has become one of the most extraordinary capitals in Europe, and strangers from all countries annually flock there to admire its beauties, and wonder at the effect which may be produced by one powerful mind. Not satisfied with merely raising fine buildings, Lewis of Bavaria has sought to nationalize the fine arts, and bring them into the houses of his people for their enjoyment. Museums have been arranged to convey clearly a history of the arts, and each of his buildings is intended to illustrate some particular epoch. The means of education in art are afforded to all, and every endeavour is being made to develop to the utmost the national resources in this respect. The success with which the king's endeavours have been crowned is to be attributed greatly to the position which he has given to artists in his dominion, and the elevation of character which it has caused. He has conferred prerogatives on genius; he has admitted that the man who is capable of affording instruction or wholesome delight to a nation, who expresses noble thoughts whether with the pen, the pencil, or the chisel, is fit society for the highest, and deserves all the rewards a country can bestow. This artist-king has shewn there is another road to the Temple of Fame besides that over dying bodies in the field of battle, and has earned for himself a niche in it next to those occupied by Pericles and Augustus.

THE CORPORATION OF THE CITY OF LONDON.—The annual accounts of the Chamberlain of the city of London have been presented to Parliament, and ordered to be printed for the information of the public. It appears that the total amount of monies received by the chamberlain of the city between the 6th of January, 1844, and the 25th of January, 1845 (being the produce and application of the several duties and payments constituting the fund called the "London-bridge Approaches Improvement Fund," for effecting public works and improvements in the metropolis), was 104,073*l.*, and the total concurrent payments, 36,279*l.*; leaving a surplus balance of 67,793*l.* Of the sums received, 88,817*l.* were derived from the duty of 8d. per ton on coals brought into the Port of London for one year, pursuant to the Acts of the 10th of George IV. and the 1st and 2nd of William IV.; 3,824*l.* from the duty on wine; 11,500*l.* from the annual charge on the revenue of the corporation; 219*l.* from the duties on admission to the freedom of the city; 82*l.* from the duties on the binding of apprentices; 190*l.* from the profits of aqueducts; and 68*l.* from a moiety of the profits of Farringdon-market for the year 1842.

ASSERTED ABUSES IN THE WESTMINSTER SEWERS' COMMISSION.

MR. JOHN LESLIE, one of the Commissioners of Sewers for Westminster, has just now published a pamphlet in the shape of a letter to the representative vestries under Sir John Hobhouse's vestry Act, charging the commission of which he is a member with extravagant expenditure and misconduct. When it is remembered that the taxation of nearly three millions of property rests in the hands of the Westminster commissioners,* and further that public health is involved, the question is seen to be one of considerable importance.

The writer sets out with the assertion that

"The active members comprehend a very considerable number of surveyors, district surveyors, and others engaged in building operations; and very frequently the painful exhibition is witnessed, of parties directly interested in the expenditure voting as commissioners on the questions."

He remarks that the contracts for the works in Westminster have been in the hands of two families since the year 1810, namely, the Messrs. Bird and the Messrs. Bennett (both highly respectable parties be it observed), and asserts that others had offered, in reply to public advertisements, to do the work at considerably lower prices, but had not been permitted to do so.

The sewers of the Holborn and Finsbury divisions the writer considers are under superior and more economical management.

"About thirty years ago, a double rate was put upon the inhabitants, and they rebelled. The present Mr. Sergeant Wilde and Mr. John Wilks of Finsbury headed the opposition to the then irresponsible commissioners, and certain clauses were framed in an Act of Parliament applicable to the Holborn and Finsbury commissioners, and of vast importance to the inhabitants. Similar clauses would save the rate-payers under the Westminster commissions thousands of pounds per annum.

The Act is the 54 Geo. 3, c. 219, passed the 25th July, 1814; and the advantageous clauses for the rate-payers to which I allude are as follows:—

The 18th section provides, that every commissioner interested either as principal, trustee, steward, agent, attorney, or solicitor, shall withdraw from the court, under a penalty not exceeding 100*l.*

The 23rd section requires that before the commissioners come to any determination as to the making any new sewer, the clerk must give twenty-one days' notice to the vestry-clerk of each parish, stating the place where it is intended to commence, pass, and terminate, and the time and place for holding the court, so that any party objecting may have the opportunity either personally or by his solicitor or counsel of doing so.

Section 24 provides that all work amounting to more than 50*l.*, including all materials used therein, shall be done by contract.

Section 26 requires fourteen days' notice of the meeting to make such contracts, to be twice inserted in three or more of the public newspapers, expressing the nature, objects, and conditions of such contracts.

Section 30 provides that the parochial authorities may peruse, make all extracts without fee or reward, from all books, papers, writings in the custody of the commissioners, or any person or persons holding office under them.

Section 31 requires the commissioners to make an annual account, to print the same, and send a copy, gratis, to every vestry-clerk; and every rate-payer to have a copy on payment of one shilling.

Mr. Leslie then goes on to shew the fruits of these checks on public expenditure.

* St. Marylebone..	£784,782	St. Giles and St. George, Bloomsbury	£93,020
St George, Hanover-square	636,765	St. Clements Danes	78,922
St. Martin's-in-the-fields	210,726	St. Pancras..	75,931
St. James, Westminster	209,253	St. Anne	65,910
St. Mary, Paddington	196,324	St. Paul, Covent-Garden	40,842
St. Margaret and St. John, Westminster	174,512	St. John, Hampstead	18,730
St. Mary Abbot, Kensington.. ..	160,822	All Saints, Fulham ..	16,264
St Luke, Chelsea ..	135,992	St. Mary-le-Strand..	12,467
		Precincts of the Savoy	5,780
			£2,917,044

In the first return I find 19 large works ("Holborn and Finsbury") comprehending

First-class sewers .	. .	12,185 feet
Second-class sewers	. .	15,531 ,,
	Total	27,716

Including the following,

31 Side entrances,
81 Junctions with other sewers,
181 Gullies.
The private drains.
Repaving all the displaced carriage and footways.

And the total cost to the ratepayers was 21,224*l.* 6s. 9d.; now, dividing this sum by the 27,716 feet of sewer, *including all extras*, about 15s. 3½d. per foot.

Some of these works were of great importance. In the first class,

2,750 feet were 24 feet deep.
3,440 feet were 18 feet deep.
3,465 feet were tunnelled 26 feet deep.

This tunnelled work, including 5 side entrances, 12 junctions with other sewers, and 20 gullies, cost the rate-payers of the Holborn and Finsbury divisions of the metropolis, including every extra, 16s. 7½d. per foot.

I have a subsequent return, bringing down the works in the Holborn and Finsbury divisions to Midsummer, 1845, which shews that additional lengths of second sized sewers were put in to the extent of 4,915 feet, *including*

90 Private drains,
8 Side entrances,
27 Gullies,
29 Junctions with other sewers,
Repaving carriage and footways.

cost 3,681*l.* 3s. 5d., which divided by 4,915 feet of sewer gives 14s. 11d. per foot, including all the extras.

In the year ending Midsummer, 1845, there are two works of unusual expense. One is the main outlet of the drainage of 4,400 acres of surface, and which has been effected thus: at a depth of 23 feet 9 inches by a circle sewer 10 feet 3 inches in diameter in the clear, one and a half brick thick in blue lias mortar, the inner invert in malm paviors in cement blocks, 570 feet in length, and 30 feet similarly done, 8 feet in diameter. The expense of this to the rate-payers of the Holborn and Finsbury divisions was 1,667*l.*, or about 2*l.* 15s. 6d. per foot.

The other is a work of very great magnitude, being 4,350 of the first-class sewer, 27 feet deep, passing under the Regent's Canal, the traffic on which was not allowed to be stopped: there are 5 side entrances, 17 junctions to other sewers, 4,270 feet of private drains, 1,344 feet of gully-drains, and the cost is 6,250*l.*, about 28s. 9d. per foot. There will be a few extras of timber to be added, as the work is not finally closed.

I have now, my Lords and gentlemen, placed before you the details of an expenditure in the Holborn and Finsbury sewers of upwards of 33,000*l.*, under the very able management of that commission, and the economical checks which the rate-payers have effected in the Act of Parliament, to which I have called your attention; and now for the reverse of the picture, where no control has been obtained by the rate-payers in Westminster.

In the Westminster commission in 1844, the abstract of sewers and drains built, and of bills for works done in the same year, shew the following lengths of sewer built:—

2 feet wide . .	152 feet 3 inches in length.
2 feet 6 inches wide,	2,685 feet 1 inch in length.
3 feet wide . .	1,792 feet 2 inches in length.
4 feet 6 inches wide	730 feet 5 inches in length.
Total .	5,359 11

The cost of which, as stated, was 7,718*l.* 10s. 8¾d., equal to within a mere fraction of a farthing of 29s. per foot; but there are no man-holes, or side-entrances, or repaving the carriage ways, and other items, in this large sum, equal at the most moderate calculation to 3s. per foot lineal in addition, making the total expense more than *double the rate of expenditure per foot lineal* in the Holborn and Finsbury commission.

Now, my Lords and Gentlemen, I will cite a few cases in your respective parishes. In George-court, St. James's, Piccadilly, 171 feet of second-size sewer, 13 feet 9 inches deep,

cost 519*l.* 12s. 5½d., equal to 3*l.* 0s. 9½d. per foot lineal, the whole court contributing 50s. every rate made on the division. In the greater portion of this property, the family of a deceased architect commissioner are interested; the late chairman at the time was surveyor to the property: this fact I ascertained from an inquiry into the whole circumstances of this transaction, and from a comparison with the surveyor's *original* report, and the alterations and erasures I discovered had been made in it, compared with the entered copy on the records of the court. For this second-size sewer down a small paved court in your parish, the rate-payers of Westminster paid 5s. 3½d. *per foot more* than the rate-payers of the Holborn and Finsbury divisions have to pay for the 10 feet 3 inches circle-sewer, forming the main outlet of the drainage of 4,400 acres of surface.

My Lords and Gentlemen, in the representative vestry of St. George, Hanover-square, a second-class sewer has been put in in your parish in Albemarle-street; it was, *according* to the accounts, 687 feet 2 inches long, 17 feet 4 inches deep, and the cost 1,260*l.* 4s. 4½d., about 1*l.* 16s. 8d. per foot.

The Holborn and Finsbury commissioners put in 1,840 feet of their second-sized sewer in Collier-street, Pentonville, 17 feet deep, *with two side entrances* for 1,023*l.* 18s. 3d., or 13s. 10d. per foot lineal, the excess of expense being in St. George's under the Westminster irresponsible commission of sewers, 165 per cent. per foot lineal.

In St. Martin's-in-the-Fields, in Castle-street and Hemming's-row, the Westminster commission put in of their second-sized sewer 728 feet 5 inches, 14 feet 8 inches deep, the cost of which, as stated by the surveyors, was 1,105*l.* 16s. 5d., or 1*l.* 10s. 4½d. per foot lineal. The Holborn and Finsbury commissioners put in in Parkfield-street, Islington, Battle-bridge, and Holloway-road, 870 feet of their second-size sewer, 15 feet deep, for, *including two side entrances*, 596*l.* 15s., or 12s. 2d. per foot lineal; the unfortunate rate-payers in St. Martin's-in-the-Fields having to pay an excess of 150 per cent. per foot.

My Lords and Gentlemen, another case in St. Paul's Covent-garden, is worthy of your notice.

An estimate having been presented of the expense of making a new sewer along Wellington-street, Wellington-street North, and Bow-street, 985 feet long first class, at a cost of 1,400*l.* 9s., it was ultimately carried to do the work in July, 1844, by the votes of the commissioners.

Now, my Lords and Gentlemen, I bring this matter before you, because of the result. Instead of 985 feet of sewer being built, only 959·2 were executed, but the expense to the rate-payers was 2,012*l.* 3s. 5d., *exceeding the vote of the court* above 40 per cent.; this sewer was at the depth of 24 feet, and the cost per foot was 2*l.* 1s. 11½d. Let me submit a work of the same depth of the first class in the Holborn and Finsbury commission, done in the New-road, St. Pancras, 2,750 feet of the first class; 600 of the second class, 3 side entrances, 8 junctions, 22 gullies, depth 24 feet, total 3,292*l.*, equal to 19s. 7¾d.; the excess in the Westminster division at the same depth being 113 per cent. per foot lineal.

Recently, in the Westminster Court of Sewers, the old form of sewer has been altered. The successful example of the Holborn and Finsbury divisions for efficiency and economy was lost sight of. The principle of the Holborn divisions as to form of sewer is the egg-shape with the narrow end downwards, whereby the smallest quantity of water passing is operative in cleansing that sewer: the shape requires a very small quantity of digging, and, when placed in the earth, forms a wedge not easily distorted by either lateral or vertical pressure.

Instead of adopting this simple, economical and efficient form, the Westminster Court of Sewers, after floundering about with various plans, adopted one which turned the reverse end of the egg downwards, put a couple of wings to the sides, which in building requires, in every foot in length, that sixteen bricks shall be *cut to particular shapes*, to form the figure.

The first work under this *new form*, and under a *new contractor*, Mr. Jay of London Wall (for the wedge is so far got in as to break up the forty years' monopoly), was done this present year, in the parish of St. Marylebone, in Berners Street, and cost, *as finally stated* by the surveyors and the committee of accounts, for 1,125 feet 2 inches of second-size sewer, 16 feet 4 inches deep, 1,288*l.* 0s. 5d., about 1*l.* 2s. 10¾d. per foot.

In the Holborn and Finsbury divisions, at Battle Bridge and the Holloway Road, I find 2,500 feet, viz. 300 feet of first, 2,200 feet of second class sewers, were put in 16 feet deep, including two side entrances, for 1,246*l.* 12s. 6d. equal to 9s. 11½d. per foot lineal, the excess in the Westminster commission against the rate-payers of Marylebone being above 152 per cent. per foot lineal.

I will cite another comparison in a place of equal importance to Berners-street, viz. Bedford-square, where the Holborn commission put in 1,380 feet of second-size sewer, 16 feet 6 inches deep, with two side entrances, and every expense, for 802*l.* 19s. 2d., rather less than 11s. 7¾d. per foot; the excess against the rate-payers under the Westminster commission, although the Holborn sewer was deeper, and the two side entrances, not in the Berners-street sewer, nearly 97 per cent."

We are not to be understood as pledging ourselves to Mr. Leslie's charges, or admitting any want of confidence in the commissioners. We insert them simply with a view to inquiry, and reserve to ourselves the right of investigating them hereafter.

Since writing the above, we have received the following communication from one who is well acquainted with the subject.

The conduct and proceedings of the Westminster Court of Sewers for some considerable time past have afforded fruitful subjects for grave and serious charges; those charges appear to amount to the following:—That the public money under this commission has been both uselessly, wantonly, and extravagantly squandered away; that it has expended scores of thousands of pounds obtained by sewers rates, in the diversion and repair of old, and in the construction of new sewers, which, after all, are now found to have been formed and put in upon improper, unscientific, and entirely erroneous principles; that had recognized scientific principles been adopted in the construction of these sewers, the cost would not have been *anything* like what has been paid for them, and, therefore, considerable lengths of good and efficient sewers could have been carried up at the same time and with the surplus money, in very many filthy places where none now exist; and also many of the old ones could have been repaired and highly improved; that instead of affording facilities for carrying off the sewerage, the majority of these sewers are nothing better than elongated reservoirs, being more or less filled up with accumulations of decomposing filth, which choke up the house drains instead of accelerating the discharge of the refuse from them; that these sewers are, in consequence, ill-adapted and inefficient for affording *good* and *proper* facilities for rapidly carrying away to the Thames the refuse vegetable or animal *matters which are discharged into them* from the various dwelling houses and premises along which they pass. It would appear, therefore, that the enormous sums of money which have been expended in the erection of these abominable constructions have been almost entirely wasted; and that the whole, or nearly the whole of them, require to be reconstructed and re-arranged. Now, if the above charges be true, and we see no reason at present to doubt them, the sooner some legislative enactment is made in order to relieve the present irresponsible and inefficient authority, and also the sooner the arrangement and construction of these sewers are based upon proper scientific principles and placed under some scientific and properly qualified board, the better. Public economy, and above all, public health, cries loudly and earnestly for some extensive and beneficial change in this important matter.

NEW CHURCH AT BYER'S GREEN, NEAR DURHAM.—A new district has lately been separated from the parish of Bishop Auckland, including the villages of Byer's-green and Kewfield, and a church, in the early English style, has been erected at the expense of the Bishop of Durham. The ceremony of consecration was performed by the bishop last week.

THE ARCHITECTURE OF GENOA;
ILLUSTRATED IN THE WORK OF GAUTHIER.*

THE architecture of Italy, viewed in connection with political history, would afford a large field for inquiry into the causes of that brilliant state in which the arts existed in every city of the country. Torn by civil strife, and its governments subverted by democratic insurrections, the peninsula yet contains an immense number of works of art, of which the most elaborate publications can give very partial illustration. Alike in the brightest days of a republic, in the most tyrannical government of a despotic ruler, in the subversion of a so-called republican government, and the sway of a demagogue, whose power was more absolute and pernicious than the oligarchy he succeeded, in every variety of position, amid turmoil and contention, which the rest of Europe has not known, art continued to advance, as it were in spite of these antagonistic circumstances, and to attain a position of splendour, which more consolidated government, and longer continuance of peace in other countries failed to acquire. We are not able, in this place, to do more than suggest a small amount of the matter of such an inquiry, but the work of Simonde de Sismondi,† will give many important materials in the historical part, and the architectural characteristics of the states cannot be better illustrated than in the works before us. The work of Cicognara on Venice has been previously noticed (*vide ante*, p. 326), and it will be interesting to compare that city with its rival republic, Genoa, the architecture of which is admirably illustrated by Gauthier. This author remarks, that in Italy there is no town, no village, which does not possess models of architecture, yet all differing from each other in taste and manner of execution. Venice, Genoa, Florence, and Rome, have each edifices of singular beauty, yet having certain peculiarities. Circumstances of locality and convenience often suggested the most striking effects, and, in that day, even the irregularities of the ground could be turned to the advantage of the art. This observation is particularly applicable to the city of Genoa, whose position seems to have called forth those fine conceptions, which strike every one who approaches it. Situated on the shores of the Mediterranean, it forms a semicircle rising with the slope of the mountains, which surround it, and has a magnificent appearance. The palaces are so numerous, that one might believe, that Genoa had only princes for inhabitants, and it was this that made Madame de Staël exclaim, when she visited the place, that the grand street seemed to have been built for a congress of kings. The vestibules, the courts, the porticos, and especially the staircases, are hardly to be equalled. The terraces and gardens are laid out with remarkable skill, and no better materials, than are in this city, could be found for the study of the art of landscape gardening, and of other accessories, which the architects of Italy were well conversant with, but which those of our own country are accustomed to neglect. The arrangement of the steps at the entrance door, the grottos and fountains, are some of the points which attention may be profitably directed to. It is evident, that effects the most remarkable are often obtained by means the most ingenious, yet the most simple. Each town of Italy has its particular description of architectural beauty, and Genoa is most remarkable for the disposition of its plans. Consequently the icnographic form of illustration occupies a considerable part of the work, which will render it especially valuable to architects. It has also sections, and perspective views admirably drawn and engraved in outline. The views shew the vestibule from which the staircase ascends to the loggia, on the first floor of the open court, various other portions of the building, and the external appearance of the house and gardens. The first part of the work contains general views of the city, and plans, elevations, sections, and views of the palace, with the walls, and the second part is devoted to the villas and palaces of the environs.

* "Les plus beaux édifices de la ville de Gênes, et de ses environs; recueil publié par M. P. Gauthier, Architecte du Gouvernement.—Paris, 1830-32," in two parts.

† "Histoire des Républiques Italiennes du Moyen Age, par J. C. L. Simonde de Sismondi.—Paris, 1826."

The elevated position, which the artist held in Italy, was no where more apparent than in Genoa. By a special decree it was made known, that the pursuit of art did not exclude the professor from the rank and privileges of nobility, and no art had greater opportunities for display than that of architecture. Within the short period of a century arose churches and palaces, not inferior to any in Italy; in which the skill of the best artists of the time was exerted, and in which the most expensive materials were lavishly employed. The difficulties of the site were the origin of the most happy ideas. The declivity of the ground rendered an ascent from the vestibule necessary in most of the palaces; and this is often the most effective part of the building. The same circumstance was availed of in the construction of grottos and fountains, and of terraces at different heights, communicating with each other and the respective floors of the building. The perfect adaptation of the dwellings to the climate, shewn in the courts open to the sky, and in the staircases and loggias, in which no protection from the weather was necessary, the admirable use made of running water, the treatment of breaks and coins, often varied in the different stories, and above all, the arrangement of entrances and approaches, are evidences of the skill and artistic feeling of the Genoese architects. Many of their names have not been preserved, but those of Galeasso Alessi, Bartolomeo Bianco, and Andrea Tagliafico, were the most famous. It is worthy of notice, that in Genoa, as in greater degree at Venice, windows often bear a great proportion to the front, and in some cases they are placed so near to the angle, as to leave what, in the absence of coins, might appear to be a very small pier for support. This extent of opening was probably for the same object, as we observed might have influenced the like peculiarity in the other city, for with so beautiful a prospect, as the Genoese palaces possessed, it is likely that its advantages were considered, and in the Church of the Assumption we find, that a balustraded way was carried along the ridge of each roof, with the purpose of obtaining several points of view.

The palace of the University consists of a vestibule next the street, a court open to the sky, arcaded in two stages, a staircase at the end furthest from the street, and rooms on each side the court and next the street. The ascent from the vestibule to the first arcade, is by a magnificent staircase. The balustrade commences nine or ten steps from the first ascent, and the space is here occupied by lions, which seem ready to spring upon the passer. The view from this point is equal to any thing in the city; in front is the staircase ascending to the court, which is in two stages, with coupled columns and arches, and at the extremity is seen the open staircase to the upper floors. Single columns corresponding with the rest, are continued round the vestibule on the level of the court, the intercolumns being balustraded. The ceiling of the vestibule is plain, as in most of the other buildings: it is arched over, the smaller arches groining into the larger. The numerous apertures in the cornices for the escape of the water, have a singular effect, and in many other buildings it is not pleasing. The façade has a low basement, in which are square windows and coins in excellent taste; above this are three heights of windows, the lower range being of singular design, and the two upper having alternately curved and pointed pediments. The front is divided into three parts, the centre compartment being set back about six inches by coins, which are varied in the different stories, and the whole is crowned by a bold cornice. The building was erected in 1642, and the architect was Bartolomeo Bianco. The Ducal palace was originally built by Andrea Vannone, but having been in great part burnt, the façade was rebuilt in 1778 by Simone Cantone. At the same time were produced the magnificent hall on the first floor, and the upper story of the building. The plan is of great extent, and has many points well worthy of notice, as in the arrangement of the columns, and the ascent to the door within the entrance court. The columns are placed four together, engaged in projecting piers, supporting the entablature, and similar arrangement of the order above. The ascent to the entrance might often be adopted with great convenience, and addition to the beauty, of buildings in England; the steps in front afford a ready access to pedestrians, and by the inclined roads, carriages can reach the same level—the whole, though simple in itself, being highly conducive to the effect of the edifice. In no particular can an imposing effect be aided by such small means, as in the arrangement of entrance-steps, and even of the flagging in front of a building; yet, to no other resources are we so wilfully blind. Such of our edifices as have a massive basement, or a fine ascent of steps, are so railled round, that the most important part of the structure is almost hid from view, whilst the National Gallery has for its basement a blank wall. Galeasso Alessi, also, would not have placed his ascent in the corners of the square, where for any purpose of effect they are useless, but by arranging staircases in the centre, would have made the building tower above the spectator. To such an architect, the declivity of the ground would have been an advantage; but *we* have really "*thrown away* the most magnificent site in Europe." The palace above mentioned is richly decorated, and may be referred to, as affording valuable hints in fire-proof construction. The Durazzo (Philippo) palace was built by Bianco, but enlarged by Tagliafico, who added the staircase, which is of great beauty. The court is square in plan, and the staircase is placed by the side of it. The elevation is of good proportions, though plain. The Durazzo (Marcello) palace is one of the few, in which there was no ascent from the vestibule; consequently, the court can be entered by carriages. It has two staircases of white marble, one on each side the corridor; they were added to the building by Carlo Fontana. The architects of the original building were Pietro Francesco Cantone, and Giovann' Angiole Falcone. The Balbi palace, by Bartolomeo Bianco, is one of the smallest in Genoa; but a striking instance of the ability to produce a fine work with small means. The plan is well arranged, though of an irregular shape, and the staircase admirably contrived; there is a descent, as well as ascent, from the vestibule. The façade is well designed. The Balbi (Piovera) palace is remarkable for its fine colonnades, and the beautiful grotto. This palace is a good example of the usual arrangement, where there was a garden. It is immediately beyond the court. The staircase is ascended from the right hand side of the court. There being no ascent from the vestibule, the grotto in the garden could at every time be seen from the street-door. Bianco was the architect. The Mari palace is also small in size, but the plan and arrangement worthy of careful examination. The portions of the ground-floor, and entresol, on each side the entrance, project in front of the main building, having balustrade and terrace on the top; the vestibule, which also projects, is lower than these, so that there is great play of light and shade. In the upper story of the front, the interfenestral spaces are hardly the width of the opening, but the effect of the front is still pleasing. Above the windows are bas-reliefs, as at present in the Oxford and Cambridge Club-house, Pall-mall. The apertures for the rain-water in the parapet are here very unsightly.

The Tursi-Doria palace, built in 1551 by Rocco Luzago, is much to be admired for the general disposition of its plan, for its elegant outline, and the character of solidity observable in it. The gardens are arranged on each side, and the balustrades and loggias, which separate them from the street, are good features in the elevation. The Hall of the Bankers was commenced in 1570 and completed in 1596, and is a building of great beauty, and of singular construction. It is a hall, oblong in plan, inclosed on two sides by columns, coupled and supporting arches, and on the opposite sides respectively by a blank wall, and by door and windows. The coins at the angles, and the trophies on the front are very effective. The roof displays great boldness of construction—the small amount of the support being considered; it is framed without a tie-beam, to get height.* The Cambiaso palace has a front, rusticated horizontally the whole height, but the windows of the different floors are so united to each other, that the perpendicular line predominates. The Church of the Assumption is a magnificent edifice; it is square in plan, the dome occupying the centre, therefore the nave and transept in plan are in the form of a Greek cross. There are two towers besides the main dome, and four small cupolas: it was intended to erect two other towers. The large dome is of great beauty. Alessi was the architect of the building which was commenced in 1552. The public granaries are well adapted to the object; they consist of four buildings, united by a commonvestibule. They are vaulted up to the top; and it is observable, that short walls are built to keep the grain free from the humidity of the larger wall. The date is 1625. The poor-house is said to be the largest in Italy; it is well planned, and the imposing effect of its façade hardly to be surpassed. The church occupies the centre of the building. It was built in 1654. It is well approached through an avenue of trees, lined by a wall and pedestals. The ascent to the entrance is here a feature worthy of notice. The Hall of St. Georges is only inferior in size to that of the Bankers, and is devoted to similar objects. The roof and ceiling are remarkable, but have hardly sufficient explanation in the work. In the Hospital for Incurable Patients we again see, that the art of architecture was not confined to private residences, but was equally exercised in charitable institutions. This building was commenced in 1420 by Andrea Orsolino; it has a fine vestibule and staircase, and a court surrounded by porticos of white marble. Instead of opening the windows for ventilation, apertures were left in the wall, and other openings made in the ceiling; the current from the lower story was carried up in the thickness of the wall. In the small Brignole palace, by Alessi, there is a staircase which deserves very attentive examination, and the façade is designed with skill. The Raggio palace has an excellent plan, and an entrance of great beauty. The Carèga palace, by Alessi, contains some ceilings splendidly decorated by Taddeo Carlone. The Serra palace is equally remarkable for the beauty of its decorations, which were executed by Carlone, and by a French artist named Callet. Andrea Tagliafico was the architect. The Lercari palace has a basement admirably designed, and adorned with rustics, and a loggia on the first floor. The architect was Alessi. The vault of the staircase is beautifully decorated with arabesques. The Sauli palace is one of the most magnificent of Italy. In plan it consists of a court in front of the main building, one order in height, and the building itself. The elevation towards the street has rusticated doors and windows, and has in all respects greater originality of treatment than any before noticed; it is connected by the colonnades of the court with the main building, which has a magnificent loggia on the first floor. The garden front is a fine façade with coupled columns in two orders, and has beautiful friezes. Alessi was the architect. The Negroni palace is most remarkable for its beautiful grotto, which is of large size. The Church della S. S. Nunziata, by the architects Domenico Scorticone and Giacomo Porta, has a noble interior most richly decorated. It consists of nave, aisles, and side chapels, and the plan is oblong in form. The ceiling is semicircular, springing from an entablature—below which are arches springing from columns of the Corinthian order. The two Spinola palaces are remarkable for their decorations, one of them has paintings of porticos in perspective, and contains a statue of Columbus. The gate of the old Mole, of which Alessi was the architect, has a good plan, and a fine fortress-like character in the front towards the sea. The Grimaldi palace has a façade, much resembling one of Venetian production; the different floors communicate with the adjoining terraces of the garden.

If the talents of the architects of Genoa are evinced in the buildings of the city, they are probably shewn in a greater degree in those of the environs. The plans being less restricted by site, are arranged in the most admirable manner, and the gardens are so laid out, as to give within a small space much variety and picturesque effect. The Pallavicini palace, which was built in 1537 by Alessi, is one of the most celebrated; it has a good plan, and the elevations are fine in proportion, and rich in ornament. It is well placed in the grounds, and there is a beautiful grotto. The villa Pallavicina has two orders of pilasters enriched with ornament, a style of decoration more suited to interiors. The villa Spinola,

* This roof is given in the supplement to the last edition of "Tregold's Carpentry," Edited by Barlow.

one of the most rich and beautiful of the environs, has an imposing elevation, and the ascent to the door well managed. In the Grimaldi palace, at San Pier d'Arena, by Alessi, the court in front of the palace is so arranged, that with most simple means a surprising effect of grandeur is obtained. The Serra palace has a good plan and beautiful approach, and the villa Fransoni, with a fine elevation, has a most picturesque site. In the villa Giustiniani, built in 1537 by Alessi, there is a remarkably fine loggia on the first floor. In the villa Spinola, at Sestri di Ponente, there is an admirable arrangement of the ground, with terraces at different heights. At the villa Doria, at San Pier d'Arena, the walks are arranged in sinuous forms, which was not usual.

There are many other villas, which we have not had space to notice, but which are well illustrated in sections and perspective views. But amongst the most magnificent, we should not omit to mention the imperial villa, in which the fountains and gardens are arranged in the best manner. Alessi was the architect. The palace of the Prince Doria, also, was of vast extent, and though its exterior was comparatively plain, internally it was embellished in the most lavish degree. The fountains, the long vineries in which the trellis was supported by elegant fluted columns; its great extent, and the splendour of its decorations, must have rendered it a fit abode for the most influential family of the Republic. The volume before us is wound up with illustrations of the theatre built at Genoa, between the years 1826 and 1828, and betrays a lamentable falling off from that high and palmy state, which earned for the maritime city the distinctive title of Genoa "the Superb." E. H.

LORD LINCOLN'S BILL

FOR THE IMPROVEMENT OF DRAINAGE AND SUPPLY OF WATER.

We closed our notice of this bill last week (p. 363) at clause 191, which directs commissioners to obtain reports on the supply of water. The following are the words of the clause:—

"And whereas it is of essential importance that all the inhabitants of every town and district made subject to this Act should be supplied with good and wholesome water for domestic purposes, to the utmost extent that the local and other circumstances of such town or district will permit, and especially that the poorer inhabitants thereof should be so supplied with water: and whereas supplies of water are also required for the efficient and wholesome cleansing of the streets, and main and other sewers and drains which may be constructed or maintained under the provisions of this Act; be it enacted, That when any town or district shall be made subject to this Act, it shall be the duty of the inspector to make diligent inquiries, and report upon the sufficiency or insufficiency of the then existing supplies of water, and, if necessary, he shall state his opinion as to the best mode or plan which can be adopted for increasing the supplies of water for the purposes aforesaid; and he shall in every such case state in such report how far any existing companies are able and willing to extend their supplies of water, or upon what terms they are willing to contract with the commissioners for supplies of water, and also the ability of such companies to supply such water; and, if necessary, he shall also state in such report what streams of water, or other water in the vicinity of such town or district, can be made available for supplying water by the construction of proper works, or by improving and enlarging the works of existing water companies, or any other water-works; and the inspector, after having drawn up such report, shall send a copy thereof to the commissioners, and also to the proprietors of any such existing water-works as aforesaid as he shall see fit."

The commissioners may make contracts with existing water companies, purchase their works, or construct works themselves for the supply of water. But "whereas it is expedient that existing water companies and other persons affording a sufficient supply of water to the inhabitants of any town or district should be protected in the enjoyment of the profit and advantages which may accrue to them by the sale of such water; be it enacted, that it shall not be lawful for the commissioners to lay down any pipes for the purpose of distributing water in any street within any town or district in which street or place any such water company or other person shall have previously to the day when this Act came into operation within such town or district, or within *Six* calendar months afterwards, laid down a main or pipe throughout such street in such manner as to enable all the inhabitants of such street to obtain a good supply of water, and so long as such water company or other person shall continue in manner aforesaid to supply the inhabitants of any street with water, it shall not be lawful for the commissioners to distribute water in such street or place."

Inasmuch as the houses of the poor are in many cases not supplied with water, on account of the inability of the owners and occupiers to lay down the communication-pipes, &c. "It shall be lawful for the said commissioners, and they are hereby required, upon the request of the owner of any dwelling-house of an annual value not exceeding *Ten Pounds*, or upon the request of the occupier, with the consent in writing of the owner of any such house, to lay down communication-pipes, together with a cistern and other apparatus required for the supply of such house with water for domestic purposes, and to keep the same in repair, and to charge for the same such reasonable annual rent or remuneration in money as shall be agreed upon, or, in case of any disagreement, as shall be settled by the said inspector; and such rent or remuneration shall thereafter be recoverable from the owner of such house at the same times and in the same manner as any water-rate due from such owner in respect of such premises may be recovered under the provisions of this Act; and such pipes and other apparatus shall not be subject to any distress for rent, nor to be taken in execution on any judgment of a court of law, or under any fiat in bankruptcy, any law or practice to the contrary notwithstanding."

Public baths, washhouses, &c. are to be supplied gratuitously:—"And be it enacted, that all existing public cisterns, pumps, conduits and other water-works used for the gratuitous supply of water to the inhabitants of any town or district, shall be continued, maintained and supplied with water by the said commissioners, and shall be vested in them and be under their management and control; and it shall be lawful for the said commissioners to erect and place any number of new cisterns, pumps, conduits or other water-works for the supply of water to the inhabitants of any street, court or alley, or of any number of houses as they shall see fit, or to erect the same in any public situation, for the gratuitous use of any persons who may choose to carry the same away for their own private use, but not for sale, and to supply with water any public baths or washhouses that may be established for the use of the poorer classes."

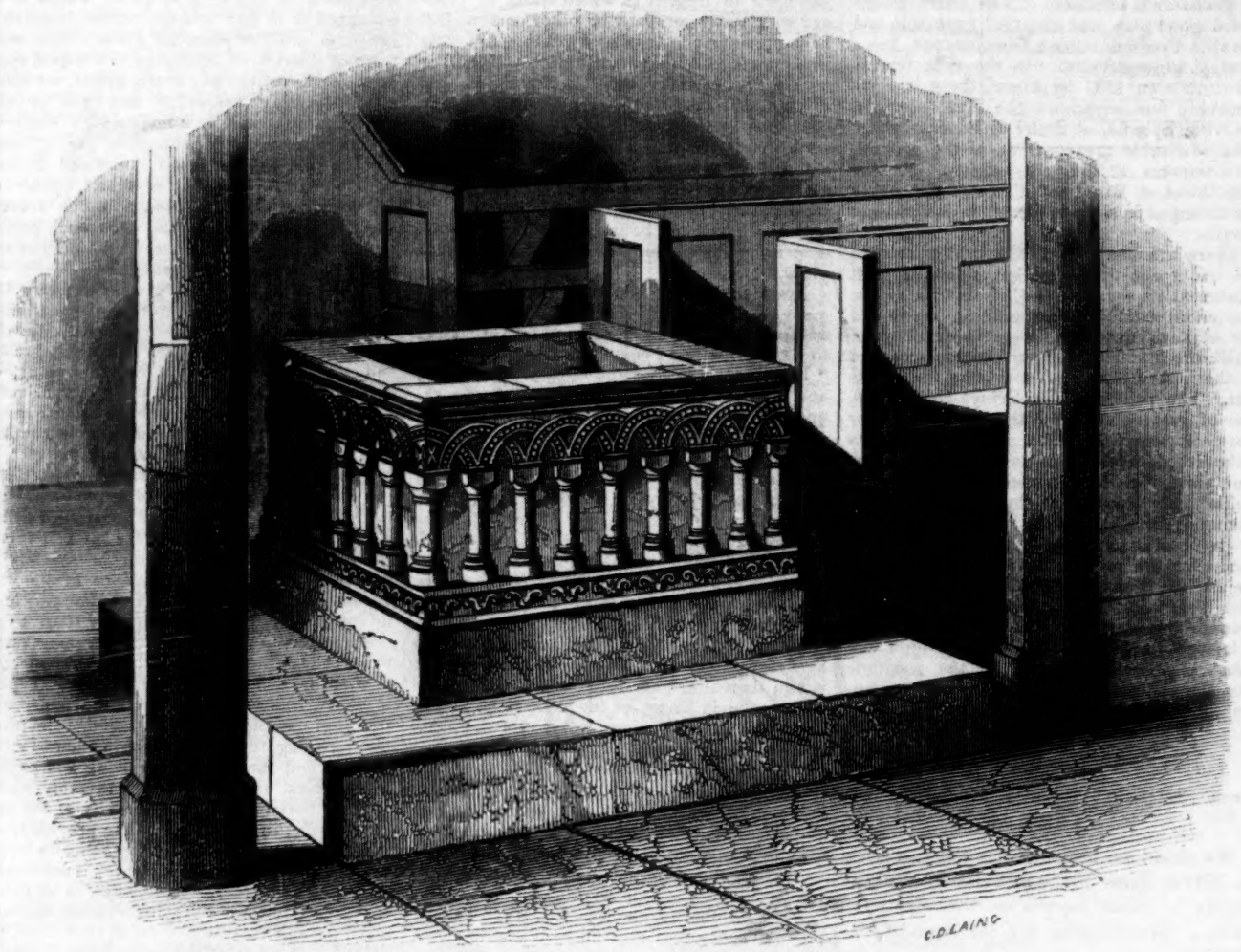
Commissioners are to provide engines for extinguishing fire, buckets, and fire-escapes. Proper fire-plugs are to be fixed into the main; and "all the main pipes to be laid down by the said commissioners, or used under and by virtue of the provisions of this Act, for supplying any town or district with water, or any part thereof, and all main pipes used for such purpose belonging to any water company or other person, shall at all times be kept *charged to the full with water under pressure.*"

A penalty of five pounds is laid on—"1. Every person who shall bathe in any reservoir, aqueduct, or other water-works belonging to the said commissioners, or their lessees or contractors, or shall wash or cause to enter therein any dog or other animal. 2. Every person who shall throw, put or cast any gravel, stone, rubbish, dirt, filth, or other noisome or offensive matter or thing into any such reservoir, aqueduct, or other waterworks as aforesaid, or who shall wash or cleanse therein any cloth, wool, leather, or skin of any animal or other thing. 3. Every person who shall cause or permit the water of any sink, sewer or drain, or any other offensive liquid, matter or thing belonging to him, to run, drain or be conveyed into any of the springs, rivulets, reservoirs, aqueducts, pipes, or other water-works belonging to the said commissioners, or who shall commit or cause any other act whereby the water of the said commissioners shall be fouled or corrupted. And be it enacted, that if any person making or supplying any gas within any town or district shall at any time cause or suffer to be conveyed or to flow into any stream, reservoir, aqueduct, pond or place for water within such town or district, or belonging to the said commissioners, or into any drain, sewer, or ditch communicating therewith, any gas or any washing substance or thing which shall be produced in making or suppyling gas, or shall do any act to the water contained in any such stream, reservoir, aqueduct, pond or place for water, whereby the water therein shall be fouled or corrupted, then such person shall forfeit and pay for every such offence any sum not exceeding *fifty pounds.*"

Then as to obtaining money to carry the several purposes of this Act into execution—"Be it enacted, that it shall be lawful for the commissioners for every town or district made subject to this Act, once in every year, or oftener if they shall think it necessary, to make one or more rate or rates, to be called the sewer rate, for the purpose of purchasing, constructing, and repairing sewers, for such town or district, and for otherwise maintaining effectually the wholesome sewerage and drainage of such town or district, and also for securing, raising, and paying any monies, and the interest thereof, which may be borrowed on the security of the said sewer rate, in pursuance of the provisions of this Act; and in like manner, once in every year, or oftener if they shall think it necessary, to make one or more rate or rates, to be called the paving rate, for the purpose of forming, making, maintaining, and keeping in repair the carriage-ways and roads, and forming, making, paving, sweeping, cleansing and watering the streets, within such town or district, and for securing, raising and paying any monies, and the interest thereof, which may be borrowed on the security of the said paving rate, in pursuance of the provisions of this Act; and, in like manner, once in every year, or oftener if they shall think it necessary, to make one or more rate or rates, to be called the general rate, for defraying all sums specially made payable by this Act out of such rate, together with the salaries of all officers acting in the execution of this Act, unless otherwise provided, and all other incidental costs, payments, charges, and expenses attending the execution of the powers, duties, and authorities hereby imposed and given to the commissioners, and which are not herein otherwise specially provided for.

"And in order to raise a sum of money sufficient to defray the costs, charges, and expenses of the water department; be it enacted, that it shall be lawful for the said commissioners, once in every year, to make a rate, to be called "the Water-rate," to be made and levied on every person who shall hold, use or occupy any dwelling-house situate within the limits of such portion or portions of any town or district as shall be marked out in the plan of the said inspector, to be supplied by the said commissioners, or by their lessees or contractors, with water, or by any other person on their account, according to the full net annual value thereof, and in like manner upon every person who shall hold, use or occupy any shop, warehouse, counting house, coach house, stable, cellar, vault, workshop, manufactory or other building, and all yards and all other places where goods or other property are deposited, or business carried on, except as hereinafter is excepted, according to *one-fourth* part only of such net annual value thereof respectively; and the said rate shall from time to time be collected and paid by yearly, half-yearly or quarterly payments, or at shorter periods, as the said commissioners shall think proper, and shall commence from such time after this Act shall come into full force and operation in such town or district as shall be fixed by the said inspector: provided always, that no person who shall hold, use or occupy any dwelling-house, shall be liable to be rated in a greater proportion than according to *one-fourth* part only of such net annual value thereof, unless the mains or other pipes of the said commissioners, or their lessees or contractors, shall be laid down and properly supplied with water within *thirty* feet from the outer wall of such premises."

NORMAN FONT, HENDON CHURCH.



NORMAN FONT, HENDON CHURCH.

The above engraving, from a drawing by Mr. Francis T. Dollman, represents a very interesting stone font of the Norman period, in Hendon Church, Middlesex. It stands at the west end of the nave, under the organ gallery, and is 2ft. 11in. square on plan, and 2ft. 8in. high, including the bottom step, 6½in. high, which is modern. The bowl, 1ft. deep, is lined with lead, and has a water drain. The font was repaired about a year and a half ago.

We have in preparation a valuable collection of Norman fonts, which we shall give shortly.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

That division of the association which have Lord Albert Conyngham for president, Mr. Pettigrew for treasurer, and Mr. Crofton Croker and Mr. C. R. Smith for secretaries, assembled in Winchester on Monday last, to hold their annual congress. The first meeting was held at three o'clock, when the president delivered an address, and Mr. Pettigrew read an able paper, explaining the objects of the association, and urging the importance of antiquarian pursuits: it gave a history of the Society of Antiquaries and traced the Archæological Association from its commencement in 1843. In the evening a conversazione was held, and Mr. Thomas Wright, the Rev. S. Isaacson, and others, read interesting papers. Since then, various excursions have been made, barrows opened, and a large number of papers read to very numerous audiences. The weather has not been propitious, but the meeting has nevertheless passed off well. Sir James Annesley, Mr. East, one of the members for the city, Sir W. Betham, Sir Francis Myers, Mr. Planché, are amongst those who have interested themselves in the proceedings. Mr. C. Croker was unfortunately called away to Ireland by the death of a relative.

The elucidation of the cathedral devolved on Mr. Cresy; and the hospital of St. Cross was illustrated by the Rev. S. Jackson.

We shall probably give more particular information next week. We cannot avoid renewing our expressions of regret that no satisfactory arrangement has been made between the two committees, but that, on the contrary, unwise supporters of either side are seeking to make religious feelings fresh elements in the quarrel. Some admirers of the objects both societies have in view, consider that the dissensions will put both parties on their metal, and induce,

——"those to work who never worked before;
And those who always worked to work the more."

That hence the common object of both will be prosecuted with a keener spirit, and with greater industry; and that when the time arrives, each party will acknowledge its own errors, and a generous smile of satisfaction will welcome the harvest of good things their differences have partially been the means of bringing to light. For our own part, however, we cannot but consider the division an occurrence of unmixed evil, and beseech all who have any influence, to use it in calming the ill-feelings that have been engendered.

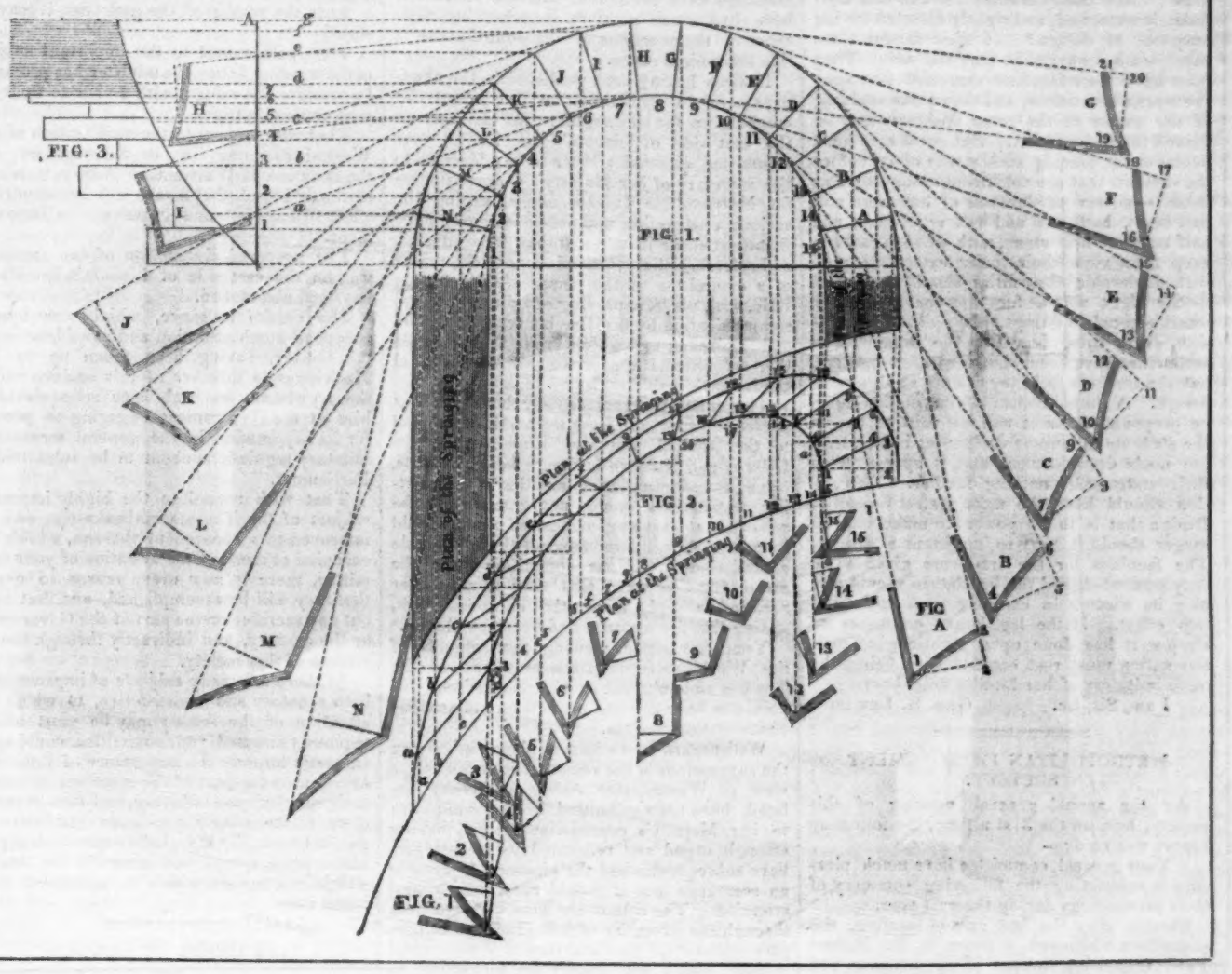
THE CONSTRUCTION OF SKEW BRIDGES.

Sir,—From the many catastrophes which have occurred by the tumbling down of railway and other bridges, particularly those that so recently have taken place on the Ashton railway near Manchester, and the two instances at Derby, I have been repeatedly requested and importuned by gentlemen of high scientific attainments to lay down the theoretical principles on which I have uniformly acted in all the works in which I have been many years engaged. Those principles, I feel persuaded, are known to few, with the exception of those whom I have instructed. Under this impression I beg leave to submit to you a plan and the description of a mode of obtaining the bevels of a bridge on the Grand Junction Railway, immediately adjoining Vauxhall Station, Birmingham. This bridge was contracted for by Mr. Brandson, builder, now of the firm of Brandson and Gwysher, the well-known railway contractors, who have been pre-eminently successful in all their undertakings. The workmanship of the bridge referred to was entirely left to my care. I have been much engaged in many extensive railway works, such as tunnels, bridges, viaducts, &c., and I never met with any difficulty but what I was able to overcome.

If you should think my endeavours worthy of being laid before your readers, particularly those who are intrusted with extensive works, it is my intention to follow up the present with a series of drawings (accompanying them with working instructions) of difficult work, laying down a sure and certain method to construct such work with ease and safety. It is deeply to be regretted that much work on railways has been erected under such circumstances as it has been, namely, that of giving contracts to such an extent, that it was absolutely impossible for those individuals to complete the work under their own eye, however talented they might be; they were necessarily compelled to re-let part of it, and in many instances the second contract has been given to individuals totally incompetent for such responsible work, and hence the many fatal catastrophes which are continually taking place. It is with a view to give instruction to such individuals that I have been induced to lay my system before the public in your valuable paper. I could name bridges to an innumerable extent on railways that really are not safe for trains to run upon; those bridges having been constructed without

NEWS ROOM BUILDER

DIAGRAM TO ARTICLE ON CONSTRUCTION OF SKEW BRIDGES.



being laid down upon true theoretical and practical principles.

In describing the plan on which the above arch was constructed, it will be necessary in the first place to shew the manner of drawing the figures represented. Fig. 1 is a section cut square to the abutment of the arch; fig. 2 is the plan of the batter line; fig. 3 gives the intrados and extrados of the arch. From figure 2 are got all the bevels required for working the arch represented by the letters A, B, C, &c., and 1, 2, 3, &c. To draw figure 2, take each distance from the perpendicular line A, in figure 3, and set them from the plan line, 1, 2, 3, 4, &c., those distances set at 12, 13, 14, and 15 in figure 2, then trace those points from one to the other, it will complete the plan of the intrados; proceed in the same manner with the lines dotted from the extrados to the battering line in figure 2. Set those distances also from the other side of the arch, which will complete the plan the extrados gives. From these two plan lines are got the bevels, A, B, C, D, &c., on the right-hand side. The bevels at the bottom, 1, 2, 3, 4, &c., are got in the following manner: the angle 1, 2, 3, on figure 2 is equal to the angle 1, 2, 3, in figure 3; the dotted line from the point A, on the section figure 1, to the bevil figure A, represents the bed of the arch stone brought out, and the stock of the bevel applied on the soffit line of the arch stone, and lying on the line A or bed of the stone, will give one draft for making the face of the springer. The plan of the springer will give the draft of the face at the bottom bed, but before the bevel A is applied, it will be necessary to apply the bevel 15 from the bottom bed of the springer, up the line of the intrados, and it will be seen that the three bevels will give the twist of the face of the springer required to get the bevel 15; it will be observed also that the line 15 is in the same parallel as line 15 on the section, figure 1. The stock of the bevel is drawn at right angles to the line 15. The angle 15 in figure 2 is equal to the angle 15 on the bevel of figure 1 on the intrados of the plan line; all the other bevels are got in the same way. To work the second stone on the right hand side of the arch, after the beds and soffits are worked, to the section mould A on the arch, take the bevel A, and apply it from the soffit along the bottom bed, which will give the first draft for making the face; then take the bevel 14, and apply the stock to the bottom bed up the line of the intrados, and it will give the second draft required; then take the bevel B and it will give the twist required for working the face of the second stone. All the other bevels are to be found in the same manner. By a strict examination of the figures and the dotted lines the system will be sufficiently clear to most practical men.—I am, Sir, &c., BEN. GREEN.

Birmingham, 23rd June, 1845.

THE SCHOOL OF DESIGN.

MR. EDITOR,—Seeing in a late number of THE BUILDER, that it was your intention to consider the matter you had before you respecting the School of Design, and to lay it before your readers, I beg to make a few remarks upon the great importance of design. If I recollect right, one of your correspondents states, that the School of Design is a school for drawing, and not for learning to design. There is no doubt about the truth of that statement. I have been much surprised from its commencement, that design should not have been taught, and I have stated this over and over again, but the authorities have been satisfied with the name they have given their school, and that the students would, by studying there, become designers. In this point they have deceived themselves, and the students have been the sufferers to the extent of designing. It appears that teachers of design have not been appointed, but teachers of drawing, and so far so good. But they must go further, and carry out the full intention of their name,—The School of Design. And why should not this nation have a School of Design, requiring it so much as it does? That a school of drawing must be established preparatory to design is true enough; but we must not deceive ourselves upon that which is only preparatory. To learn our language, is only preparatory to our becoming poets. By reading Shakespear our minds will be improved, but we must not expect to become dramatic poets. By copying the Parthenon, our minds will be improved on Grecian architecture, but by doing so, we must not expect to become designers of architecture for English people; the climate, the land, the convenience, the comfort, the peculiar wishes of the individuals, must be first consulted before we venture to force a style of architecture upon the employer; the design must be made to conform to the wants of the party, and to accomplish which, a vast deal of philosophy will be required. A designer must be taught to become an active observer, and after that, as active a reasoner. But his observations must be made upon the wide field of Nature—throughout the works of creation, in order to fill his mind with the true materials, and with which design is only to be effected. The works of the great designers sufficiently testify this by their close imitation of the beauties of nature. The designers of our cathedrals, like great men, stuck to the subject for which they designed. They did not, like slavish copyists, go to the Parthenon, and make studies of that temple (which was designed for pagan purposes), to assist them in designing a temple for Christian worship! No, they invented such forms as would be in accordance with the Christian religion, and thus make an appeal to the flock that it was the house of prayer for all who wished to worship the living God. To design, is to invent such form as will tell its own tale, and speak as it were to

the subject for which it was designed. Are the students then of the School of Design thus taught? It appears not. They are taught to draw, but then what are they taught to draw? Are their faculties for the arts legitimately exercised, and rightly directed for the purposes of design? If their faculties are exercised upon art only, they are not. They must have their faculties exercised first upon the works of creation, and then a due studying of the works of the great designers may be turned to good account. But great care must be taken in placing such works of art before the students that are not incongruous—such as those senseless productions of half man and half beast, half man and half vegetables, and half man and half stone, with wooden cases to keep from view their lower extremities; all such deplorable absurdities should be turned to the right about, for they have outlived sensible people's likings. In point of true design, every thing is yet to be done. The authorities have been changing their masters, but the students feel they are not at all nearer design. A sound system of instruction must be propounded, or it will be vain to expect the students to become designers; in fact, they are made draughtsmen, and, it appears from their statements, nothing further. This nation should have the most perfect School of Design that is in its power to make, and no longer should it delay so important a subject. The faculties for the arts were given to be duly cultivated, and the legislature should employ its wisdom in carrying such cultivation into effect. If the legislature continues to sleep as it has done upon artistic education, this nation must rest content with being the mere imitators of her foreign neighbours.

I am, Sir, &c. GEO. R. LEWIS.

METROPOLITAN IMPROVEMENT SOCIETY.

AT the annual general meeting of this society, held on the 31st ultimo, the following report was read:—

"Your general committee have much pleasure in submitting the following summary of their proceedings during the past year.

Shortly after the last annual meeting, the committee addressed a letter to Sir Robert Peel, requesting to know if any progress had been made in the preparation of a map of the metropolis, founded on an ordnance survey, which had been promised to a deputation of this society in 1842, and urging the importance of such a map on various public grounds.

The committee also took that opportunity of expressing a hope that the important question of an embankment of the Thames, with a view both to the improved facilities of communication, as well as public health and recreation, would not be lost sight of during the then ensuing sessions of Parliament.

A letter was also addressed to the Secretary of her Majesty's Commissioners for Metropolitan Improvements, on the subject of the proposed line of thoroughfares, connecting the Belgrave-square district with Westminster Abbey and the New Houses of Parliament, strongly urging that good taste and public convenience should not be sacrified to a narrow economy; but that by some modification, a view of Westminster Abbey as one of the noblest monuments of antiquity might be preserved, and an approach to that, and the seat of the legislature, rendered worthy of the metropolis of the British nation.

In their last report the committee stated the steps which had been taken with regard to a modification of the window duties, or as they have been justly designated, taxes upon light and ventilation, in their effects, excluding multitudes of human beings from the light of the sun during a large portion of their existence, and compelling them to breathe pestilence. Your committee continuing to feel a revision of this tax essential to the sanatory existence and comfort of the community, as necessary also to avoid its resulting and injurious consequences in defective construction and architectural deformity; and, moreover, satisfied that an alteration might be effected with little or no sacrifice of revenue, resolved to persevere in such object. Mr. Hickson (who on this and many other occasions as the society have witnessed, has been most strenuous in his exertions), having prepared a paper on the subject, your committee resolved that a thousand copies of the same should be printed and circulated. Several petitions to Parliament on the same subject were also prepared and adopted, public meetings were promoted, and the committee have had much pleasure in recording their sense of the exertions of Viscount Duncan in this benevolent cause.

Notices having been published in the newspapers of an application to Parliament for stopping up the thoroughfare for carriages on the east side of Lincoln's-Inn Fields, your committee directed a letter to be addressed to the secretary of her Majesty's Commissioners for Metropolitan Improvements, urging the serious obstruction and public inconvenience that must ensue if such a project were effected, and referring the commissioners to the report of a committee of the House of Commons in 1838, with plans, approving of a direct carriage communication by that line between the Strand and Holborn; and which, from the evidence then submitted, it appeared would be effected at the inconsiderable outlay of 18,000*l*.

The committee represented, that there is at present no approach from the north of London to the Strand, between Endell-street, St. Giles's, and Holborn-bridge, except by courts, or narrow winding lanes; and that if the existing obstructions could not immediately be removed, at least any increase of them should be prevented by the influence of the honourable commissioners. Your committee have the gratification to state, that they shortly after received a reply from the commissioners, stating that the measure had been abandoned.

Your committee, viewing the subjects of the Westminster improvements and of the Thames embankment as of great national importance, have devoted much time and anxious consideration thereto.

With regard to the former, plans, embodying the suggestions of the society, with a bird's-eye view of Westminster Abbey as thereby isolated, have been submitted by the committee to her Majesty's commissioners, and having strongly urged and reiterated its importance, have subsequently had the pleasure to receive an assurance that it should receive their best attention. The committee have been enabled, through the liberality of Mr. Hickson, to prepare copies of the plan and view of Westminster Abbey, which will shortly be forwarded to every member of the society.

Modified plans of the Thames embankment, embracing the suggestions of various members of the society, have also been prepared with the view of being submitted to the commissioners. Subsequently, your honorary secretary, Mr. Henry Austin, has suggested a plan of a railway street, in continuation of the embankment, and by which a junction may be formed with the Blackwall railway, and by which means the improvement long since urged by the society to her Majesty's commissioners, may be effected; namely, that of a spacious street or roadway, adequate to the increased and increasing traffic between the western and eastern parts of the metropolis.

Your committee have the pleasure to state, that on these plans having been submitted to the directors of the Blackwall railway, they were highly approved, and readily adopted by them. A company is in course of formation to carry the same into effect; and with the further view of connecting the same with other railways, by which the present obstruction of the principal public streets will doubtless be much relieved.

The committee cannot but congratulate the members on the signal success which has hitherto attended the efforts of the society. Although their power is not great, and their means at present are small, it has become manifest that they may be rendered the nucleus of important benefits. The Government having so readily yielded to the representations and suggestions of the society in advising her Majesty to appoint a commission for metropolitan improvements, this society for a time remained passive, considering its province rather to watch the proceedings of that body, and to render from time to time such assistance in the way of suggestions, or otherwise, as might be in their power; but observing how little has hitherto been effected, and satisfied by a review of the past year how much may be done by zealous and persevering efforts, and encouraged by success, your committee would call on the society, jointly and individually, to future exertion; and to devise some efficient steps to render its existence more generally known, and extend its sphere of influence and usefulness.

As to the results of the past year, it may be stated—

That with regard to the important subject of the window duties, the minister has promised to consider the subject with a view to their repeal or modification.

That with respect to the modification of the Westminister new line or thoroughfare, and the isolation of Westminster Abbey, it is now earnestly hoped that means will be adopted to effect so manifest and important an improvement.

The proposed obstruction of the carriageway on the east side of Lincoln's-Inn Fields has been abandoned.

The smoke nuisance, which was long a source of much attention and consideration to the society, having been taken up by Mr. Mackinnon, a member of this society and of the legislature, has only been relinquished by him on the Government engaging to provide for its suppression in the general measure of sanatory regulations about to be submitted to Parliament.

That with regard to the highly important subject of the Thames embankment, and the improvements consequent thereon, which has occupied so much of the attention of your committee, there is now every reason to expect that they will be accomplished, and that without any sacrifice on the part of the Government or the country, and indirectly through the exertions of this society.

As there are many subjects of improvement, both sanatory and constructive, to which the attention of the society may be most advantageously directed, your committee would again earnestly impress the importance of individual exertion on the part of the members, to extend their numbers and influence, and thus to render their future efforts yet more conducive to public benefit." We gladly repeat this appeal, and express a hope that many of our readers will join a society which is calculated to do much good.

ART-UNION OF LONDON.

THE annual exhibition of the works of art purchased by the prizeholders will be opened to the subscribers and their friends, at the Suffolk-street Gallery, on Monday, the 18th inst. The Art-Union indemnity bill has received the royal assent. We are glad to learn that the committee of the House of Commons, who were appointed to take evidence on the subject of art-unions last session, are about to publish their report and the minutes of evidence. The committee of the Art-Union of London have commissioned Mr. Calder Marshall to execute in marble his group, "the first whisper of love," lately exhibited in the Royal Academy, for a prizeholder who had deputed the committee to select a work of art for him.

HOLBORN AND FINSBURY SEWERS.

TENDERS recently delivered for construcing a main line of sewer in Charlotte-street, Bedford-square, 3,573 feet in length:

Digge	£5,500
Cooper	4,505
Ward and Son	4,230
Johnson	4,190
Bethick, and R. Davis	3,876

For the branch drains and gullies:

Digge	£1,200
Cooper	850
Ward and Son	840
Johnson	800
Bethick and R. Davis	771

The mode of estimating which produces such results as this must be defective in the extreme.

OPERATIVES IN PARIS.—The journeymen carpenters of Paris still hold out. A meeting of the master builders has been held to receive delegates from the men, but the terms proposed by them were rejected by a majority of 167 votes to 7.

ON THE PRINCIPLES OF GREEK ARCHITECTURE.*

Mr. Wilkins has remarked, "that the Greeks adhered to established rules for determining the proportions of the several divisions of the naos, cannot be doubted. The great similarity which is discernable in the plans of most of the temples with which we are acquainted, warrants the conclusion that they studiously followed some one great model, and deviated from it as little as circumstances would allow them. In order to ascertain the accuracy of this conclusion, we must have recourse to some of the earliest temples of which there is any authentic account, and consider what resemblance can be traced in the plans of such as were erected at periods not very distant, in countries remote from each other."

Our author, then, compares the plan and proportions of the temple at Jerusalem with the temple at Pæstum; those who may wish to ascertain how far he has succeeded, must refer to his "Antiquities of Magna Græcia." If we were to admit that Mr. Wilkins had shewn that the temple at Pæstum was exactly the same as the temple at Jerusalem, and that the latter was a model from which emanated the temples of Greece, we should even then be very little benefited, not more so than if it were to be proved that the form of one of our cathedrals had been selected from one on the continent. We differ from Mr. Wilkins in endeavouring to find a model from which the temples were copied:—our inquiry is—*What were the principles which guided the formation of the Grecian temples?* This is the very error of the followers of Mr. Wilkins's school, which has retarded the progress of architecture as an art of design for years; their aim being to imitate by copying, and continually discoursing of effects, instead of developing causes. Therefore, *however* correctly Messrs. Stuart and Revett, or Mr. Wilkins, may have delineated the existing remains of Grecian buildings, important as the acquisition may be—unless we can obtain the key by which we can detect the original source of their creation, we must never expect to understand Grecian architecture, but continue *to copy only the models*, to be satisfied with their acknowledged beauty, and remain ignorant of the cause of that beauty. The deficiency of a correct knowledge of proportion is one of the reasons why architecture in modern times has seldom been successfully treated. Each part of a Greek temple was so regulated as to bear a just proportion to the whole: in this alone how deficient are our edifices!

> "Though we excel in every separate part,
> Yet fail of just proportion in our art,
> In one grand whole unknowing to unite
> Those different parts."—*Horace.*

We have copied a portico, placed it against a house, a church, or a theatre; and however perfectly we have imitated it, and beautiful as it may be *per se*, it never has been adjusted to bear any proportion to the building to which it has been affixed.

Before, therefore, an architect can design an edifice in any style of architecture, he must become acquainted with that style which he proposes to adopt; and if he wishes to raise himself above the plagiarist, and add new features to existing styles, it is absolutely necessary he should first possess a knowledge of the principles which guided our ancestors; unless this be done, however cleverly he may imitate, it will be impossible for him to strike out new ideas with any certainty of success.

That the principles by which Grecian architecture has been moulded into beautiful forms have never been discovered is perfectly apparent, if we quote only a few remarks offered on this subject.

Mr. Gwilt observes, it may be objected to, that fitness alone will not account for the pleasure which arises in the contemplation of what are called the orders of architecture; and Alison seems very much "to doubt whether there be not some other cause of beauty."

"If admiration of Grecian architecture," says Mr. Wilkins, "result from intellectual association, it will be found to exist only among men of knowledge; and its just proportion will be determined by those whose taste is the most cultivated, and whose science is the most extensive; but if there be some intrinsic charm, some peculiar grace, which is necessarily acknowledged and felt by all mankind, we then must look for some more general principle, which will accommodate itself to this more general feeling." "We can scarcely deny, then, that the pleasure which is derived from surveying the ancient models of Grecian architecture is heightened by ideas connected with learning, with science, and with art; accompanied, as they still must be, by all the nameless charms which imagination combines with the history of the Greeks, and which it throws over all their productions. It is probable, nevertheless, that their buildings possess certain qualities which affect us independently of all these associations, and which, even without them, fail not to produce sentiments of admiration, and feelings of delight."

The same cause which operated so powerfully during the middle ages, and to which we and our continental neighbours are alike indebted for our beautiful cathedrals, viz., religion,—influenced in like manner the contemplation and erection of the Grecian temples; in the ancient, as well as in the modern world,—in savage, as well as in civilized nations,—we find that religious edifices are the largest in extent, the most elaborate in execution, and likewise the most costly of all the works of men.

If, therefore, we desire to seek the causes which operated so powerfully and so successfully in rearing edifices, acknowledged by all to be beautiful, our merely possessing accurate representations of those buildings is not sufficient for us to determine the reason of their being beautiful; to gain this desideratum, we must carefully inquire into, and examine the celebrated matured scientific systems of the earliest philosophers of Greece, and see if they will assist us by shedding any light upon so important and interesting a subject. To accomplish this, we will at once transport ourselves to Greece and the age of Thales and Pythagoras, who founded the earliest schools of geometry; the latter of whom, according to Proclus, was the first who gave geometry the form of a science.

Thales was born at Miletus, a Greek colony in Asia Minor, in the first year of the thirty-fifth Olympiad. After receiving the usual learning of his own country, he travelled into Egypt, where he became eminent in astronomy, geometry, philosophy, &c. From him astronomy made a very considerable advance, and he is generally reputed to be the father of the Greek philosophy, being the first that made any researches into natural knowledge. He founded the Ionian school 600 years B.C.

From Thales we pass on to Pythagoras, a philosopher no less distinguished than the former for the variety and extent of his discoveries. The information which he derived from his countrymen not satisfying his inquiring mind, he travelled into various countries. He first visited Egypt, from which country he went to Asia, where he is said to have made himself acquainted with the science of the Chaldæans and the Magi. Although these traditions may have some historical foundation, it is considered that his philosophical system was not derived from any foreign source, or even materially influenced by any thing that he saw and learned in the countries which he visited; his whole philosophy bears the impress of genuine Greek growth, and there is scarcely any thing in it which may not be traced to some native source.

Pythagoras finally settled at Crotona, in Southern Italy, and established a philosophical institution about B.C. 500, which in many repects bore great analogy to the Doric institutions which he had seen in Crete and Sparta. He instituted among his disciples a secret worship, or mysteries, which are sometimes called Pythagorean orgies; and the science of numbers, geometry, and music, were closely connected with the sacred rites.

The main purpose of philosophy, according to the system of Pythagoras, is to free the mind from incumbrances, and to raise it to the contemplation of immutable truth, and the knowledge of divine and spiritual objects. Mathematical science was with him the first step to wisdom, because it inures the mind to contemplation, and takes a middle course between corporeal and incorporeal beings. The whole science he divided into two parts, numbers and magnitude; and each of these he subdivided into two others; the former into arithmetic and music, and the latter into magnitude at rest, and magnitude in motion; the one comprehending geometry, and the other astronomy. Arithmetic he regarded as the noblest science, and an acquaintance with numbers as the highest good. He considered numbers as the principles of every thing, and divided them into scientific and intelligible. Scientific number is the production of the powers involved in unity, and its return to the same. Number is not infinite, but it is the source of that infinite divisibility into equal parts which is the property of all bodies.

Not any exposition having been handed down to us by Pythagoras of his scientific labours, it is undoubtedly no easy matter to separate, in the later traditions, what belongs to the old system, and what to the new. In modern times, great light has been thrown upon the subject by the careful examination and analysis of the fragments of Philolaus by Boeckh. Philollaus of Tarentum, a disciple of Pythagoras himself, was in all probability the first Pythagorean who wrote an exposition of the system of his master; and his fragments must therefore be considered as the most genuine source of information. The results at which Boeckh arrived are, on the whole, the same as those which Ritter subsequently reached, though by a different mode of inquiry.

* From "The Natural System of Architecture," by W. P. Griffith, Esq., F.S.A.

IRON AND THE IRON TRADE.

Since the last quarterly meeting of iron-masters, the trade has acquired much firmness, and may be regarded as in a more fixed and healthy state than for many months past. There is no disposition to form prices above their natural level, and the late rates agreed upon will we have no doubt be fully maintained. The tendency in the market is rather to advance than to recede. At a meeting of the masters at Glasgow, on the 30th ultimo, prices were reduced from 80s. to 65s. net, four months, or 2½ per cent. for prompt delivery. In rails, some large transactions have taken place during the past fortnight, at prices varying from 9*l.* to 9*l.* 10s. per ton.

It is well known, that iron made from coal in France is of an inferior quality, and unfit for railway and other engineering works. This fact, in connection with the fears of the French government, of the entire disforesting of the kingdom if charcoal iron-works are carried on to any extent, has suggested the idea of forming an establishment at Boulogne-sur-mer for the make of iron and the manufacture of fire-brick and pottery, from ores, coal, and clay, to be imported from Wales. Mr. R. Hopkins, with whom the idea originated, and who possesses several mines of the necessary materials, proposes to raise a capital of 100,000*l.*, to carry into execution his project.

The following is a statement of the imports and exports relating to iron, for the past year, 1844. Our imports of foreign iron-ware—chromate of iron, 2,365 tons; pigs, 52 tons; bars unwrought, 24,483 tons; bloom iron, 524 tons; old broken and cast-iron, 97 tons; unwrought steel, 2,717 tons; wrought steel and iron, entered by weight, 153 tons—ditto, entered by value, 11,905*l.* Of foreign iron in bars, 21,598 tons were retained for home consumption, and 5,876 tons exported, of which 3,371 tons went to India, and 1,013 to our North American colonies.—Of British iron we exported that year 99,960 tons of pig-iron; 230,935 tons bar-iron; 18,980 tons bolt and rod-iron; 18,969 tons cast-iron; 1,963 tons iron wire; 2,490 tons of anchors, grapnels, &c.; 15,654 tons in hoops, &c.; 7,226 tons nails, &c.; and of all other sorts (except ordnance) 48,170 tons; of old iron, for re-manufacture, 9,271 tons; and of unwrought steel, 5,121 tons.

New Churches and Schools in the Diocese of Durham.—The dean and chapter of Durham have recently voted the following donations for buildings connected with religion and education:—300*l.* towards a new church in the parish of Berwick-upon-Tweed; 25*l.* towards a school at Castlesides, near Lanchester; 20*l.* towards a school at Ellerker; 10*l.* towards a school at Coundon; 20*l.* towards a school, and 200*l.* towards a new church, at Ferryhill.

OPENING OF THE RAILWAY FROM LONDON TO CAMBRIDGE.

The continuation of the Eastern Counties line to Cambridge, Ely, Norwich, and Yarmouth, was opened on the 29th ult. A large number of persons attended at Cambridge, and the whole of the proceedings passed off very satisfactorily.

The most important station on the line is at Cambridge. It is a long, and handsome brick building, with stone dressings, consisting of a double series of arcades; one extending over the siding of the railway, and the other serving as a portico for the carriages arriving at the station. It was designed by Mr. Thompson, and erected by Messrs. Jackson, of Pimlico; as were also the stations at Chesterford and Wenden. Mr. Robert Stevenson was the engineer, and Messrs. Peto and Grissell the general contractors. The stations are all laid down with Seyssell asphalte, and afford a good example of the material.

There was a dinner at Cambridge on the occasion, and our chief inducement to notice the proceedings was, that we might record some remarks then made on the conduct of the workmen employed on the line, and the character of the contractors.

The Dean of Ely adverted in the highest terms to the unremitting excellent conduct of the operatives throughout the line. As a magistrate of Ely, he had had every opportunity of witnessing their demeanour, and it afforded him unspeakable satisfaction to bear the most unqualified testimony to the peaceable, orderly, and sober manner in which they had uniformly conducted themselves. (Cheers.) With three exceptions only, throughout the whole of the period the works had been carried on, not the shadow of a complaint had been made against them, and those exceptions were of the most trifling character; it was due to the labourers to bear this testimony in their favour (cheers), but a still higher measure of justice was due to Messrs. Grissell and Peto, whose judicious and liberal arrangements for the instruction and moral and religious welfare of the numerous band of workmen in their employment, were worthy of all praise, and had been productive of the greatest advantages. (Cheers.) He rejoiced at the accomplishment of the mighty work which had been achieved, and which they were that day met to commemorate. Not only would the material interests of the important districts by which the railway would be traversed be improved to an incalculable extent, but, which was far more important — the moral and intellectual interests of the community would be advanced and improved in a degree which perhaps it was impossible for human ingenuity to estimate. (Cheers.) Greatly as we were indebted to the piety of our ancestors for the stupendous institutions they had founded for the religious advancement of our race—yet were they infinitely surpassed by the mighty efforts which were now in progress, and the union of all that science and art could effect with all the elevation of purpose which characterized the present operations of the present age and controlled their influences, would produce results of the loftiest and most gratifying description.

The Bishop of Norwich was obliged to repeat the sentiments uttered by his friend the Dean of Ely. But if it were a repetition, it was not as tedious as a twice-told tale—for it deserved to be told three times three and "with one cheer more," (cheers) and the tale was the good and exemplary conduct of the railway labourers. (Cheers.) The dean said that, as a magistrate only three cases of misbehaviour had come before him. In Norwich they could surpass the eulogy of the dean, for there they had not one. (Loud cheers.) Not one man throughout the line (loud cheering), but the men were everywhere described as doing their duty like Englishmen, and none ever did it better (cheers), and here he would give credit and honour to whom credit and honour were due. He was himself a churchman, and holding high office in the church, and believed that in that church was the purest faith, but he was still a Catholic Christian (loud cheers), and as such would hold it as a dereliction of his duty if he did not express his approbation, respect, and regard for the exertions used for the moral benefit of the railway labourers by Mr. Peto. All down the line he had met with his agents, and had found them not merely giving directions and instructions, but also giving to the men religious books, and schools for the education of themselves and their children (loud cheers), and thus shewing them that education can civilize the mind, reform the habits, and elevate the understanding. The gin shops were left deserted, and the schools were full. (Cheers.) Who was there who would throw a damp upon the means even the humblest of education, come whence it may. Mr. Peto was a dissenter, and he (his lordship) envied the sect to which he belonged, the possession of such a man; he would gladly purchase him at his own price, and heartily he prayed that he would ere long become a member of the Church of England.

The Vice-Chancellor said, "The world of science had been employed in the accomplishment of the stupendous operations which railway proceeding had developed, but with him it was a source of inexpressible gratitude that not only had the regions of science been resorted to by the men who had created new and vast fields of enterprise, but that they had taken the opportunity which the concentration of the powerful body of artisans and labourers under their direction, and in their employment afforded them of diffusing amongst them the precepts of religion and morality. He bore just testimony to the excellent conduct of the labourers throughout the whole period of the formation of the line, and stated that their attendance at the Norman church, in the neighbourhood of Cambridge, which had been conceded to them at the earnest request of Messrs. Grissell and Peto, had been uniformly marked by diligent attention and reverent devotion.

INSULATED BUILDINGS:

ACCORDING TO THE BUILDINGS ACT.

Sir,—A point that would appear to be one of general interest having arisen between a district surveyor and myself, the following letter, addressed to the district surveyor, which will perhaps suffice to explain the subject, may not be useless:—

"My dear Sir,—I am leaving town to-morrow morning, but hear (even after your assent on Saturday to the proceedings) that you demur to the two houses in Lyndhurst-square, of which you have notice as 'insulated buildings,' upon the ground that they are not twice 30 feet, or in the whole 60 feet apart. I was quite prepared (sanctioned by counsel's opinion), to have proceeded with any additions I chose to make to any "commencement," not offensively setting up my opinion against the referees. My point is, they have no power to limit or control the express words of a public Act; more especially relating to matters clearly not within their province. There can be no question of my perfect right of trying the extent or limitation of the word 'commencement' in a court of law, which I was quite prepared to do, and am still prepared,—if any question is raised—but prefer paying your fee as of "insulated buildings," my object being not collision with authorities, but permission to carry out my barge-boarded pediments, &c., in conformity with the houses already erected.

The objection taken I was quite alive to, and that induced me so cautiously to word my notice.

I had intended some months since to address a letter to The Builder upon the subject; as I do not disguise my intention of so carrying out my operations to some considerable extent in this neighbourhood, as availing myself of a rational permission in this suburban district, believing as I do, that additional ground adds value to the outlay.

I had, however, hoped that no attempt would have been made to pervert the clear and singularly (for this Act) intelligible clause under which I presume you ground your objection.

I cannot avoid remarking, I think it would be but an act of courtesy if district surveyors were to supply the architect concerned in the building with the ground of their objections in writing, when most frequently a dispassionate discussion would settle all points in difference.

The course, however, taken is an appeal to the referees; the first step being, that the district surveyor is called upon formally to state the grounds of his allegations or irregularity; the party, by a transmission of a copy from the referees, obtains the information by a costly mode of proceeding.

I have also been told by a district surveyor, in the presence of the referees, that a party producing a plan of intended operations and seeking advice as to its conformity with the provisions of the Act, the district surveyor is not bound to assent or dissent from its accuracy.

I believe a party serving the district surveyor with a copy of a plan of intended operations, and seeking his advice, which being refused, and for the sake of the argument assuming non-conformity to the provisions of the Act to exist in some parts,—I think, I say (if permitted to proceed, and the errors are eventually complained of), the district surveyor would be told in a common law court that he was not merely ministerially acting, but in respect of the prescribed fee for superintending this particular work, he would be held liable for his wrong doing. If my arguments fail to convince your judgment, I would request, as a preliminary step, the grounds, in writing, of your objections. Should you withdraw your objections, I shall then feel obliged by your so informing me, that my works may proceed without the suspense and doubt of their conformity, which brings me to what I presume to be your grounds of objection, viz., under schedule C, second paragraph, part 7, which, describing what are to be deemed 'insulated buildings,' states:—'And with regard to such building, so far as relates to the *distance* thereof from any other *building*, or from ground not in the same occupation therewith, or connected therewith only by a fence or fence wall, it must be distant from such other *building*, or such other ground, at the least 30 feet.'

We will first try the question by the actual position of my houses. They stand on my freehold, 50 feet from each other; and you have admitted, by measurement with my builder, that no portion of the ground surrounding the houses is within 30 feet 'from ground not in the same occupation;' as no fence or apparent division exists as dividing this 50 feet, I would challenge your authority to call upon me to state to which I meant to attach at least 30 feet.

We will now try the question upon a broad principle. Since hearing of your objection, I have consulted two intelligent legal friends, who not only fully confirmed my views, but expressed surprise how such plain language could be attempted to be perverted—with the permission to erect with any 'dimensions and materials' such buildings. To prevent accidents by fire the controlment is enacted—and if a number of houses were in erection together, 30 feet apart controls the matter; but it clearly was evident to the minds of those who framed the clause that one house only might be built: and then comes the restriction (and which be it borne in mind is in the disjunctive), 'or from ground,' that is to say, you shall not avail yourself of this permission unless you have in the same occupation at least 30 feet of ground, so that any future erection cannot possibly be nearer than 30 feet. Hypothetical cases might be multiplied, but I will not further entangle the discussion thus, or by shewing how readily the clause may be evaded altogether.—Yours faithfully,

Greenway Robins."

Employers and Workmen.—Our notice of entertainments given by employers to the men in their service, and the view we took of the advantages likely to result from such a course, have led correspondents to send us accounts of various similar meetings. Last week more than 200 persons connected with the brewery of Messrs. Hanbury and Co. dined and supped at Rosherville Gardens, near Gravesend, at the expense of the firm, Mr. Davison, engineer, in the chair. A local paper says, "At 8 o'clock the whole party embarked in the most orderly manner on board the Vesper, Star Boat; and it is but an act of justice to add, that if parties holding higher births, and assuming greater rights of civilization, were to conduct themselves throughout a festival of this kind with as much propriety, it would go far to establish a better order of things."

Correspondence.

GLASS PIPES.

Sir,—At the late meeting of the English Agricultural Society at Shrewsbury, I noticed with interest some specimens of glass pipes, introduced there by Mr. Freeman Roe, of London. This invention strongly recommends itself to notice and approbation, by its securing the cleanliness and salubrity of the water in its conveyance from its source, whilst the cost of manufacture will not be much, and its durability will be lasting. It is well known that all natural waters contain in solution bi-carbonate of lime, in greater or less proportions, which act in two manners injuriously in the ordinary pipes. The evaporation of a portion of carbonic acid will precipitate the insoluble carbonate of lime or chalk, well known as a deposit in pipes and the fur in tea-kettles, which obstructs and finally closes up the passage, whether in lead or iron. The carbonates of lead and iron are also formed at the expense of the metals, the former of which has been proved to be highly injurious to health, whilst the latter, though less so, produces, by its astringency, bad effects upon the human constitution, and at the same time from the formation of these soluble salts, the metals rapidly corrode and wear away. Where water is required for vegetation, the presence of the smallest quantity of iron is injurious, whilst its brackish taste renders it unfit for domestic appliances. Now, as *points* are necessary for the first crystallization, from the uniformity of surface in glass, no deposition can take place in pipes formed of this material as in those of lead or iron; nor can the material be acted upon chemically, so that whilst the pipes are kept clean, the water is insured in the same condition of purity as at its source. The abolition of the duty on glass will doubtlessly lead to its introduction to many other purposes useful and ornamental, as vases, basins, and other parts of decorative fountains, where the transparency of the material would have an interesting effect, much above that produced by the opacity of the matter at present employed.

1, Finsbury-square. A. Booth.

BUILDERS' ESTIMATES.

Sir,—Knowing you to be an advocate for correcting abuses, I trust you will excuse the liberty I take in addressing you relative to certain works which were to be executed and are now in progress at an institution belonging to the united parishes of St. Giles and Bloomsbury; and for which I, among others, was requested to estimate, and received a letter stating "the trustees *hoped* to be *favoured* with a tender from me for the works, which were to be divided into two classes, one containing bricklayer, plasterer, carpenter, smith, &c.; the other the plumber, glazier, and painter, so as to form *two estimates, distinct* and *separate*" (these are their own words).

I accordingly sent my estimates at the time and place appointed, where four of the trustees met the surveyor for the purpose of opening and deciding on the tenders which were to be adopted. My tender for the principal of the works, viz., the bricklayer, plasterer, carpenter, and smith's work, &c., was the lowest of any, and another tradesman was lowest in the painting, &c.; which estimates, had they been accepted, would have been "a saving to the institution of 3*l.* 10*s.*," and honourable and straightforward on the part of those assembled. But no, the surveyor advises the trustees to accept the tender of another party (one of his own neighbours), "because," as he says "he was lowest on the gross amount;" and on being asked for an explanation, said the trustees did not bind themselves to divide the works. Then why have requested two "*distinct and separate estimates?*

Here I beg to state that there were similar works executed last year at the same institution, and under the same surveyor, on which occasion they divided even the plumbing from the painting, which invariably go together as a matter of course. Thinking I was dealing with honourable men, I did not make a question about the division of the works previous to forwarding my tender, which perhaps I ought to have done, but shall be more cautious for the future, and hope my brother builders will be on their guard also against such injustice.

Hoping you will find space in your valuable journal for this,—I am, Sir, &c.,

J. S., Junr.

Tottenham Court-road, 28th July, 1845.

FIRE-PROOF CEILINGS.

Sir,—My attention being directed by a letter in The Builder to a project for diminishing the combustibility of houses by the substitution of iron for wooden lathing, the idea of substituting slates "for partitions, ceilings," &c., instead of laths of any description, presented itself to my mind. I accordingly tried the experiment on a small scale, and found it to answer exceeding well. I fixed some scantlings together, and nailed the slates to them, allowing a proper space between each slate. I likewise cut slits in each slate about three inches long, and three-eighths of an inch wide, thus: each row being about four inches apart. I, by this means, secured the perfect keying of the lime. I then laid on two thin coats of plaster, both of them not being more than half an inch thick. After allowing the plaster to dry properly, I applied a fire of dry fir shavings directly below it, for the space of a quarter of an hour, the heat and flame from which were exceedingly intense; some of the slates were merely a little cracked at the edges, where they were not well covered with lime. The difference of expense between slates and wood laths would not be considerable, and buildings might by this simple and cheap means be rendered almost fire-proof. I perceive a similar idea has struck the mind of your Kensington correspondent.—I am, Sir, &c., J. R.

Hartlepool, Aug. 2nd.

Miscellanea.

Decorative Art Society.—On Wednesday, the 30th ult., "*the consideration of Geometrical figures in the foundation of graceful outline*" was resumed. The elements of spiral, waved, and serpentine lines, were discussed with the usual methods of producing them, and as these lines are, in practice, generally adjusted and regulated by the hand and eye of the artist and workman, it was felt that a mechanical system would be of great utility and importance, provided simplicity could be combined with the process. After some remarks on the properties of the Greek spiral, such as admitting a tangent to be drawn at right angles to a radial perpendicular, and having the convolutions at a certain uniform ratio (as evidenced by examples in the British Museum and in Stuart's works), distinctly different in principle from the logarithmic or any other spiral, attention was devoted to Mr. Jopling's explanations of his septenary system of generating curves by continued motion. This system had been brought before the society at a previous meeting, and was received with some attention by the members, but as only one of the seven divisions had been published by the author in an extended form, its application to the lines under consideration was novel and strikingly illustrative of its merits; and from the courteous and liberal manner in which Mr. Jopling gave his valuable information, it was agreed by several of the members to endeavour to apply it experimentally in their respective occupations, as far as their limited acquaintance with it would enable them to do so, and to report the results to a future meeting. The drawings of serial conchoid, cardioid, and other curves produced by the above system, led to the supposition that new combinations of pleasing character (varied as in diapering, engine-turning, &c.) might be derived and applied economically to decorative purposes in manufactures. This being the last meeting of this season, the chairman congratulated the members on the very satisfactory nature of the past meetings, as yielding to those of few (if any) other societies in interest; and in adjourning the meetings for two months, he felt much pleasure in being able to state, that several papers were in preparation likely to sustain the reputation of the society.

Extension of the Regent's Park.—During the past week, workmen have been employed, by order of the Commissioners of Woods and Forests, in erecting a fence round the land (including Primrose-hill) on the north side of the Regent's Park, recently belonging to the Euston estate, but exchanged with the commissioners for other lands, for the purpose of increasing the Regent's Park, and securing a public throughfare to the top of Primrose-hill. The hill, and land adjoining it, from the suspension-bridge over the Regent's Canal, comprising 150 acres, will be converted into plantations, serpentine, and other gravel walks, and small pieces of ornamental waters, the whole of which when completed will be thrown open to the public.

Art-Union Prize Annual.—We have before us the first volume of this work, published by Sprigg, of Great Russell-street, and intended to present each year engraved representations of *every* work of art purchased by the prizeholders in the London Art-Union. We shall notice it at greater length next week; and in the meantime recommend it to the subscribers and all interested in art.

New Powder Magazine—The purchase of the Kinterbury estate by the Government, as the site of the new powder magazine, has been completed for 23,000*l.* The works will be commenced forthwith.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the executing the skeleton of Glenorthy Castle, County of Limerick, Ireland.

For Building a New Union Workhouse, to contain 1180 Persons, for the Guardians of the Clifton Union.

For the complete restoration of two Windows on the south-side of St. Thomas's Church, Salisbury; also, for Cleaning and Whitewashing the interior of the same Church.

For the execution of Works on the Leeds and Thirsk Railway.

For Coupled Locomotive Engine and four-wheeled Tender, to contain 700 gallons, for the Manchester and Birmingham Railway Company.

For the execution of that portion of the Newcastle and Berwick Railway, extending from the Newcastle and North Shields Railway to Netherton, being a distance of about 12¼ miles.

For the execution of several lengths of Earthwork on the Aberdeen Railway. There are 5 separate Contracts, varying in lengths from 3½ miles to 4¾ miles.

For the erection of a Wesleyan Proprietary College at Taunton.

For the supply of 70,000 Larch, Oak, or Fir Sleepers, and Fencing for 50½ miles, or any part thereof, for the Ipswich and Bury St. Edmund's Railway Company.

For the erection of a new Village Infirmary at Brampton, near Huntingdon, for the Lady Olivia Sparrow.

For erecting a Convalescent Ward, Nurse's Room, and a Wash-house, adjoining the Infirmary of the Sudbury Union.

For Building 700 feet of Sewer in Lower Garden-street, Westminster, for the Trustees of Tothill Fields.

For the Construction of the Gas Works at Wells, in the county of Norfolk, with all necessary apparatus.

For a supply of eighty fathoms of Yellow Deal Ends and Boards, in equal proportions, of the best description, to the Trustees of the Parish of Islington, Middlesex.

For a supply of fifty fathoms of the best Yellow Deal Ends, to be worked direct from the ship, to the Directors and Guardians of the Poor in the Parish of St. Marylebone.

For the execution of the works on the Nottingham and Lincoln Railway, in two parts; 1 from Nottingham to Newark, being a distance of 17½ miles. 2 from Newark to Lincoln, being a distance of 15¾ miles.

For the construction of the entire Line of Railway through the County of Anglesea, for the Chester and Holyhead Railway Company. It is divided into four separate Contracts, being respectively in length 5 miles and 28 chains, 5 miles and 26 chains, 7 miles and 55 chains, and 3 miles and 60 chains.

For the execution of the several works required in the Tynemouth Extension Railway, comprising about 740 yards of Tunnelling, with Earthwork, &c. The length of the extension is one mile.

For supplying her Majesty's several Dockyards with 11,000 loads of African Timber.

For the Buildings intended to be erected at King's Langley, for the Committee of the Booksellers' Provident Institution.

COMPETITIONS.

Plans are required for Laying out and covering with Villa residences about 20 Acres of land having a frontage of about half-a-mile to the Queen's-road, Richmond, Surrey, extending from Spring-grove towards Richmond-hill. Premiums will be given of 25 guineas for the most approved plan, and 15 guineas for the second.

The Committee for the establishment of Public Parks, Walks, &c., at Manchester, offer two prizes, one of 50 guineas and the other of 25 guineas, for the best and second best set of Plans (with estimates), for the laying out, &c., of the sites already purchased by them.

The Board of Guardians of the Bridlington Union offer a premium of 10*l.* for a Plan and Specification of a Workhouse, the expense of which is not to exceed 2,000*l.*, and to accommodate 150 inmates.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At Little Bentley Hall, Essex, 2,000 straight and good Larch Firs.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

TO CORRESPONDENTS.

"A. A."—*Thanks.*

"A. J. G." (Sudbury).—*Inquiries into private character are beyond our province. Even asking the question might injure the party named.*

"Stone groins."—*A subscriber asks for an account of the construction of stone groins "beginning with the common four-ribbed, with the means of setting out the same for workmen, and the jointing of the masonry." We shall be glad to receive communications on the subject.*

"Wood Models to draw from."—*A correspondent wishes to know if any person in London makes such, or of paper; plaster of Paris being so brittle.*

"Stir in the School of Design."—*Mr. J. Strudwick denies the statement that he has not been a student in the School for twelve months. We have not space for his letter.*

"A Student," *should have sent us a sketch; without it we cannot judge.*

"X. Y. Z."—*If the house be rebuilt under the provisions of the Buildings Act, our correspondent is not bound to provide a spout: if otherwise, we apprehend he cannot legally stop an ancient waterway without providing a substitute.*

"W. G."—*The height of a building, to settle the rate, is to be ascertained by measuring from the surface of the* lowest floor in the building. *Not knowing the rate of the addition about to be made, we cannot tell if the wall in question would be sufficient. Buildings or offices, whether attached to or detached from the buildings to which they belong, are to be deemed as buildings of the rate to which they would belong if they had been built separately. Schedule C., part VII.*

"P. T. D."—*We shall be glad to hear from him again.*

"Duty on Bricks."—*A correspondent asks whether a drawback is allowed on bricks made by a proprietor on his own estate for his own use. We believe there is not, excepting when used for drainage, when they must be marked "drain," and not used for any other purpose under heavy penalty.*

"A New Subscriber."—*The Independent Chapel at Holloway is mentioned in p.* 142 *and p.* 166, ante. *St. Peter's Church, Islington, has not been spoken of in* THE BUILDER.

"W. J. W."—*The vase shall be engraved.*

"Kite's System of Ventilation," "N.," and "B. B.," *next week.*

Received:—"Friend to the Builder," (Wisbeach). "Plan of Buildings for Working Classes; J. Boult, Architect," "Dolman's Magazine" No. VI. (commencing a new Volume); "Quarterly Journal of the Geological Society, No. III." (Longman); "Old England, Part XX." (Knight); "Pictorial Gallery of Arts, Part VII." (Knight); "Medical Times" for July; "A Peep into Architecture," by Eliza Chalk (Bell, Fleet-street). "An Old Subscriber."

ERRATUM.—*The quotation by Mr. Angell in his paper read at Institute of Architects, reported at p.* 351, ante, *was from* Empedocles (*the Agrigentine philosopher*) *and not from Pericles, as stated.*

**** Correspondents who threaten to cease to be subscribers because we differ in opinion from them or refuse to insert communications which would really injure them in public opinion, must think meanly of us if they consider the threat likely to alter our course of proceeding. Our duty is to give sound information and honest opinions, and we will perform this to the extent of our ability without respect to persons.*

ADVERTISEMENTS.

SASHES Primed and Glazed at 7d. per foot.—CROWN-GLASS, 6d. per foot.—WHITE LEAD, 26s. per cwt.—PIPE and SHEET LEAD (cut) 21s. 6d. per cwt.

J. WINCH, late Foreman to R. Cogan, begs to acquaint the Trade that he can supply them with WINDOW GLASS, SHEET LEAD, PIPE, COLOURS, WHITE LEAD, &c., of the best quality at the lowest prices. CARVERS and GILDERS, CABINET MAKERS, and others are respectfully informed that their glass is looked out with peculiar care.—Every inquiry immediately answered, and equal attention paid to small or large orders. LAMP SHADES and GAS GLASSES at wholesale terms.—Address, 15, High-row, Knightsbridge.

MONS. BOUTIGNY'S EXPERIMENTS on the FREEZING of WATER in RED-HOT CRUCIBLES, &c., will be repeated by Dr. Ryan, in his Lectures on the CAUSES of EXPLOSIONS in STEAM-BOILERS, daily at half-past Three, and in the Evenings of Mondays, Wednesdays, and Fridays, at Nine, at the ROYAL POLYTECHNIC INSTITUTION. The ATMOSPHERIC RAILWAY, carrying from Six to Eight Visitors at once, is lectured upon by Professor Bachhoffner, and exhibited daily, and in the Evenings. The art of SWIMMING and DIVING illustrated by a Youth Eight and a half years of age, the Son of Capt. Stevens, the celebrated teacher of Swimming, on Mondays, Wednesdays, and Fridays at Two o'Clock, and on the Evenings of Tuesdays and Thursdays, at half-past Eight. All the other popular Exhibitions and interesting Works as usual.—Admission, One Shilling; Schools, half-price.

PRIZES IMPORTANT TO INVENTORS AND PATENTEES.

A GOLD MEDAL, value 100*l.* and a SILVER MEDAL, value 50*l.*, will be given by Mr. M. JOSCELIN COOKE. The Gold medal for the best Patent, and the Silver medal for the best Design taken out or Registered at the OFFICE for PATENTS and DESIGNS, 20, Half-Moon-street, between the 1st of November, 1844, and the 1st of June, 1846. The Prizes will be awarded by competent judges on the 10th June, 1846. The conditions to be observed, together with instructions, charges, and every information for obtaining Patents in England or Foreign Countries, or Registering Designs, will be forwarded gratis, on application to Mr. M. JOSCELIN COOKE, at the Office for Patents and Registration of Designs, 20, Half-Moon-street, Piccadilly, London.

PAINTING BRUSHES OF SUPERIOR QUALITY.
TO PAINTERS, BUILDERS, &c.

J. J. KENT AND CO.,
MANUFACTURERS,
11, GREAT MARLBOROUGH-STREET, LONDON,

Offer to Painters, Builders, &c., Painting Brushes of a quality far superior to those generally offered for sale, to which they beg to call the attention of all who prefer quality and durability to apparent cheapness.

ooooooo.—7 in. Dusters.
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Plasterers' Brushes.
Distemper ditto. Ground and Unground.
Sash Tools, and Common Tools.
Tar Brushes and Masons' Brushes, and all other Brushes used by Painters and Artists.

Lists of Prices of Painting Brushes, and of all other kinds of Brushes, forwarded on application. Established 1777.

VENTILATION.

"A most ingenious, simple, and effective plan." Mr. Reid's Lecture on Ventilation, delivered, June 7, 1845, before the Mechanics' Institute, Liverpool.

BAILLIE'S PATENT TRANSPARENT VENTILATOR, ventilates rooms or public buildings without causing unpleasant draughts of air—may be fixed as easily as a pane of glass, whose place it supplies—does not derange blinds, shutters, or other fixtures belonging to windows—most useful to public places of every description, especially smoking and coffee rooms, and moreover a simple remedy for smoky chimneys. This article may be obtained from all respectable glass dealers in London; Mr. Edgar Parks, ironmonger, 140, Fleet-street; Messrs. Stock and Sharp, and Mr. Samuel Beale, Birmingham; Messrs. John Hall and Sons, and Messrs. Dixis and Williams, Bristol; Messrs. Thos. and Will. Stock, Liverpool; Messrs. Davidson and Armstrong, Manchester; Mr. James Bell, Glasgow, &c.; who have models to explain its action, and will be glad to give any further information; also to be seen in use at Mr. Fred. Smith's, the Albion, 239, Blackfriars-road; Mr. Edward Baillie's, 12 B, Cumberland-market, Regent's Park; Mr. Seaton's, Dublin Castle, Park-street, Camden Town; 2, Coleman-street-buildings, Moorgate-street, and at the office of this Paper.

THE PROJECTED RAILWAYS.

ANALYSIS of the PATENT METALLIC SAND, or English Pozzolano, used in the foundations of the New Houses of Parliament, the great Tunnels on the Birmingham Railway, Sea-wall on the Great Western Railway in Devonshire, and other important works referred to more particularly in the prospectus.

Silica	49	Lime	6
Oxide of Iron	32	Magnesia	2
Alumina	6	Zinc	3

Arsenic and Carbonate of Copper 2

Price in Swansea, free on board, 6d. per bushel, or supplied in London at 1s. per bushel.

Used as an external Stucco the Metallic Sand Cement is unaffected by frost or wet; in appearance it resembles the best Portland Stone, requires neither colour nor paint, and is entirely free from vegetative cracks and blisters.—Further Particulars on application to Mr. C. K. DYER, 4, New Broad-street, London; and at the Metallic Sand Wharf, King's-road (opposite Pratt-street), Camden Town.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

MARTIN'S PATENT CEMENT.
TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

STEVENS and SON, PATENTEES and SOLE MANUFACTURERS, beg respectfully to announce that this beautiful Cement has now arrived at a degree of excellence far surpassing their most sanguine expectations. For all internal work it possesses a great superiority over every article hitherto in use; it is now being used extensively by Government in the British Museum and other public buildings. IT DOES NOT THROW OUT ANY SALT, but presents a beautifully plain and perfect surface, which may be painted upon dry work within four days without peeling. It is equally applicable for walls or lath, for mouldings, architraves, skirting, or flooring; and is admitted to form the best ground for fresco painting, having been used for many of the prize frescos lately exhibiting in Westminster Hall. It will bear an intense heat without cracking, and for hardness, durability, and economy, cannot be equalled.

186, DRURY-LANE, LONDON,

Agent for Liverpool and Manchester, Mr. R. Part, 11, Atherton's-buildings, Dale-street, Liverpool.

KEENE'S PATENT MARBLE CEMENT.—The Patentees of this composition beg to refer to the British Museum, the Royal Exchange, the new works at Bethlem Hospital, Greenwich Hospital, and the Coliseum in the Regent's-park, as buildings finished or in progress, in which Keene's Cement has been used as an internal stucco. Its superiority to common plastering consists in its extreme hardness, and the rapidity with which it dries, which qualities fit it to receive paint or other finishing sooner than other water Cement.

When employed for skirtings, architrave, and other mouldings, in place of wood, it checks dry-rot, is impervious to vermin, prevents the spread of fire, and is more economical in its application than the material for which it thus becomes the substitute.

Confirmation of these statements is to be found in the almost universal adoption of Keene's Cement for Skirting and Hall flooring in the new houses on the Hyde Park Estate, where its application is to be seen to the fullest advantage.

In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier, and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.